**Overview:**

Students work individually to understand and establish the specifications for a PC dedicated to a specific task or function. (The specific task or function will be assigned to the student from the list below.) The function and features of various hardware components are researched to develop a general understanding. Specific components and features are then selected based on appropriate need for the assigned task or function. The final product is a brochure that will be shared with other classmates during a tradeshow event.

**Objectives:**

* Use correct terminology to describe computer hardware, speed measurements, and size

measurements

* Describe the functions of the internal components of a computer
* Describe the functions of common computer peripheral devices
* Assess user computing needs and select appropriate hardware components for different

situations

**Getting Started:**

1. You will be required to design a “dream machine” personal computer (PC) for one of the tasks assigned to you from the list below.
2. To get started, develop a general understanding of what will be important features and what will be less important features of our dream machine. Consider the following:
   1. Operating system software
   2. Special application software
   3. Processor & motherboard speed
   4. Main memory speed and size
   5. Secondary storage speed and size
   6. Graphics and display speed and resolution
   7. External devices (e.g. keyboard, pointing devices, joysticks, etc.)
   8. Network connectivity
   9. Power and data backup
   10. Printers, scanners, and similar equipment
   11. Portability and durability
   12. Budget (cost) considerations

Specific Tasks & Functions

1. ***Game Computer***: Dedicated to playing PC games in a home environment
2. **Photo Editing & Organization**: Dedicated to editing and producing photographs and images in a home or professional environment
3. ***Business Office Computer***: Dedicated to producing documents and presentations and communicating with other people in a professional office environment
4. ***Student Home Computer***: Dedicated to completing homework, paying bills, communicating with friends and other similar tasks in a home environment
5. ***Factory Floor Computer***: Dedicated to reading documents, filling in forms, processing orders, etc. in a factory or warehouse environment.
6. ***Media Production and Streaming Computer***: Dedicated to production and distribution of video and/or music media in a semi-professional environment
7. ***Web Surfing Computer***: Dedicated to surfing the web, streaming media, and communicating through on-line services in a home environment

**Level 1: Processor & Memory**

1. Research and summarize the main features and function of a CPU processor chip. Consider the following:
   1. Physical packaging shape and size

The shape of the CPU chip is rectangular and the size can vary.

* 1. Processing speed and power

The speed for a processer chip on average is 2.7GHz. The power is 35 Watts,

* 1. Memory speed and size

The memory size on average is 64 bit and speed is 4750T.

There are 6 different versions of CPU Processor Chips that are popular in the tech industry. One chip is the AMD Sempron with a speed of 2.9Ghz and the capacity depends on the motherboard. Another chip is the AMD Athlon with a speed of 2.33Ghz and the capacity depends on the motherboard. The third chip is the AMD Opteron with a speed of 3.5Ghz and the capacity depends on the motherboard. The fourth chip is the Intel Celeron with a speed of 3.6Ghz and the capacity depends on the motherboard. The fifth one is the Intel i9 with a speed of 3.6Ghz and the capacity depends on the motherboard. The last chip is the Intel Pentium with a speed of 3.8Ghz and the capacity depends on the motherboard.

1. Research and summarize the history of how a CPU processor chip has changed over the years. Consider the following:
   1. Typical processor speed, size, model numbers in the early 1990’s

The typical processer at this time was the AM386. The speed of that chip was 40MHz and the size was 32 bit.

* 1. Typical processor speed, size, model numbers in the early 2000’s

The typical processer at this time was the Pentium 4 with a speed of 1.3GHz and size of 64 bit.

* 1. Typical processor speed, size, model numbers in the current time

The typical processer at this time was the Intel Core i9 with a speed of 2.9GHz and a size of 64 bit. CPU chips have gotten faster and bigger in terms of memory since the 1990s. They have also got smaller in size.

CPU Processor Chips started out very big and slow and they produced a lot of excess heat. For example, the first intel chip was the 4004 with a speed of 740khz, which is way slower that some processer chips used in today’s computers. Intel also introduces the microprocessor, which was a game changes meaning it was small but had the same speed and power as some of the older and bigger processers. In the 1980s, custom build your own computer was not a thing and the separate processer chips were very expensive. When more chips were being invented by different companies, the processer chips became more affordable to the public. This meant they could customize their PCs.

1. Research and summarize the main features of motherboards. Consider the following:
   1. Physical packaging shape and size

The shape of the motherboard is rectangular prism with the dimensions of 12 × 10.1 in.

* 1. Speed and size

The speed of the motherboard on average is 3200MHz and the maximum size is 64Gb.

There are 4 different versions of the motherboard. One being the AT Motherboard with a speed of 100MHz and a capacity of 16GB. Another is the ATX motherboard with a speed of 200MHz and a capacity of 32GB. Also, the BTX motherboard which is faster than the ATX and has a greater capacity. Another Motherboard is the mini ITX.

1. Research and summarize the history of how motherboards have changed over the years. Consider the following:
   1. Typical speed, size, model numbers in the early 1990’s

The typical motherboard at this time was the ATX with a speed of 200MHz and the dimensions were 12in x 9.6in. The motherboard has a size capacity of 32GB.

* 1. Typical speed, size, model numbers in the early 2000’s

The typical mother board at this time was the ITX with a speed of 400MHz and dimensions of 6.7in x 6.7in. The motherboard had a capacity of 64GB.

* 1. Typical speed, size, model numbers in the current time

The typical motherboard of the current time is the Intel DH55TC with a speed of 500MHz and capacity of 4x16GB memory. Motherboards overtime have gotten faster and faster with increased capacity from 16GB to 64GB. The overall size and dimensions have gotten smaller.

1. Research and summarize the main features and function of RAM memory. Consider the following:
   1. Physical packaging shape and size
   2. Speed and size

There are 5 different versions of RAM that are available in the Tech market. One type of RAM is SDR SDRAM or Single Data Rate Synchronous Dynamic RAM with a speed of 133MT/s and sizes available are 16mb, 32mb,64mb, 128mb, 512mb, 1Gb, 2Gb, 4Gb and 8Gb. The second is DDR SDRAM or Double Data Rate Synchronous Dynamic RAM with a speed of 400MT/s and there are various sizes and capacities. Another version of RAM is the DDR2 SDRAM or Double Data Rate2 Synchronous Dynamic RAM with a speed of 800MT/s and there are various sizes and capacities. The fourth RAM is the DDR3 SDRAM or Double Data Rate3 Synchronous Dynamic RAM with a highspeed of 1600MT/s there are various sizes and capacities. The last type of RAM is the DDR4 SDRAM or Double Data Rate4 Synchronous Dynamic RAM with a speed of 2666MT/s and there are various sizes and capacities. All these types of RAM are compatible with the following sizes: 16mb, 32mb,64mb, 128mb, 512mb, 1Gb, 2Gb, 4Gb and 8Gb.

1. Research and summarize the history of how RAM memory has changed over the years. Consider the following:
   1. Typical speed, size, model numbers in the early 1990’s
   2. Typical speed, size, model numbers in the early 2000’s
   3. Typical speed, size, model numbers in the current time

RAM started out to be very slow and it took a long time to access files on a computer, but overtime RAM became faster with more storage space. SRAM was a slow form of RAM it did not a lot of memory space. Then DRAM was invented, this had a lot more space and It was faster than SRAM. One of the fastest types of RAM is the DDR4, this RAM is way faster than the older RAMs, DDR4 also had more capacity with 8Gb of storage in one piece. RAM also used to be a lot bigger and took up a lot of space to be used. But now RAMs can be small as 30 cm in length and they could be faster than some older RAMs.

1. Research and summarize the main features and function of Hard Disk Drives (HDD). Consider the following:
   1. Physical packaging shape and size
   2. Speed and size

A hard disk drive (HDD), hard disk or hard drive, is something used by computers to store information. Hard disks use magnetic recording to store information on rotating discs. The capacity of a hard drive is usually measured in gigabytes (GB), however hard disc capacity can also be measured in terabytes when the capacity is over 1000 gigabytes. A gigabyte is one thousand megabytes and a megabyte is one million bytes, which means that a gigabyte is one billion bytes. Some hard drives are so large that their capacity is measured in terabytes, (TB) where one terabyte is a thousand gigabytes (1 TB = 1000 GB). Very early Consumer Grade hard drives were measured in megabytes.There are 4 types of Hard Disk Drives. One of the dives is the IDE drive with a speed of 133MB/s and a capacity of 2.1GB to 137GB. Another drive is the SATA with a speed of 600MB/s and a capacity of 500GB to 8TB. The third drive is the SCSI with a speed of 640MB/s and a capacity of 300GB. The last drive is the SAS drive with a speed of 6GB/s and a capacity of 6TB.

1. Research and summarize the history of how Hard Disk Drives (HDD) have changed over the years. Consider the following:
   1. Typical speed, size, model numbers in the early 1990’s
   2. Typical speed, size, model numbers in the early 2000’s
   3. Typical speed, size, model numbers in the current time

Hard Disk Drives started out very big and very slow. The speed was not that fast compared to the Drives of today. The older drives were physically very large. Drives started to become faster and they could hold more data. The invention of the Microdrive changed the hard disk drive market, this drive was small but had the speed and capacity of some older drives. The latest hard disk drives today can hold more than 5TB of data and are very fast to transfer data.

1. Explain and justify the processor and memory requirements for your ‘dream machine’ task. Discuss the following:
   1. Minimum and “would be nice” requirements for the CPU chip

The minimum requirement for a CPU chip would be the INTEL i7 and a would be nice would be the INTEL i9 9900k. Fast processor are needed because the computer needs to be great at exporting and encoding/decoding video/media files.

* 1. Minimum and “would be nice” requirements for the Motherboard

The minimum requirement for a motherboard would be the ASUS Prime H370-Plus ATX and the would-be nice would be the Asus – PRIME Z390-A ATX LGA1151 Motherboard. Motherboards like these are needed as they have USB ports (these are useful when plugging in external storage containing media) and the right sized CPU chip socket. Fast motherboards are needed as video editing requires a lot of power.

* 1. Minimum and “would be nice” requirements for the RAM memory

A media production computer does not need a high-performance RAM. The minimum requirement for a RAM would any 8GB RAM and the would-be nice RAM would be any 16GB RAM. RAMs are important for the resolution of footage, a bigger RAM can increase the resolution.

* 1. Minimum and “would be nice” requirements for the HDD

The minimum requirement for an HDD would be the BarraCuda 4TB and the would-be nice HDD would be the BarraCuda 8TB. Large HDDs are needed as for media production you will need to store a lot of media.

**Level 2: Display & Peripherals**

1. Research and summarize the main features and function of Computer Display Monitor. Consider the following:
   1. Physical construction (CRT, LCD, etc)
   2. Display Standards (CGA, VGA, SVGA, XGA, etc.)
   3. Resolution & Colour depth

There are 3 different types of Monitor versions available. One version is the CRT monitor and these monitors are highly reliable and efficient and can generate a resolution of up to 2048 x 1536 pixels. CRT is mainly used in old TVs before the LEDs and LCDs. Another monitor is the LCD monitor and these monitors are compact, lightweight, and do not take up much desk space. LCD monitor do not use too much electricity and they are ecofriendly. The last monitor is the LED monitor and they produce images with a very high contrast and the images are very clear. LED monitors are known to be the best type of monitors because they are very thin, and they do not produce much heat when running.

1. Research and summarize the main features and function of a Computer Graphics Card. Consider the following:
   1. Physical packaging (e.g. On the motherboard, expansion card, etc.)
   2. Speed and frame rate (2D vs 3D)
   3. Resolution, colour depth, and memory size

A graphics card or video card is a component of a computer which is designed to display images on some sort of display medium, like a display monitor. Many computers have a basic video and graphics capabilities built-in to the computer's motherboard. These "onboard" video chips are not as fast as normal graphics cards. They are fast enough for basic computer use and even some basic computer games. If a computer user wants faster and more detailed graphics, a video card can be installed. Video cards have their own processor (called a Graphics Processing Unit or GPU). The GPU separate from the main computer processor (called the Central Processing Unit or CPU). The CPU's job is to process all the calculations needed to make the computer function. they can be used to display a 2D image like a Windows desktop, or a 3D image like a computer game.

1. Research and summarize the history of how Computer Display Technology has changed over the years. Consider the following:
   1. Display standards and capabilities in the late 1980’s
   2. Display standards and capabilities in the late 1990’s
   3. Display standards and capabilities in the 2000’s

The early monitors in the 1980s were not that clear and they did not have that much contrast. Monitors started to become clearer with a greater resolution when the LCD was introduced. The first LCDs were very expensive but overtime they became cheaper for the common household. More colors were visible on the LCD monitors than the older CRT monitors. Monitors became clearer, thinner and the screens became bigger.

1. Research and summarize the main features and function of External Storage and Backup. Consider the following:
2. Removable media (e.g. floppy disks, CD/DVD-RW, CompactFlash, etc.)
3. USB media (e.g. Memory Stick, External HDD, etc.)
4. Cloud based storage

Floppy disks are made of a thin and flexible magnetic storage materiel. Floppy disks are used to store data in hardware object. Floppy disks were used in the 1970s, but they are not needed anymore as computers have become better. Before RAM was invented, Floppy disks were the way to store data. DVD is used for data storage and as a platform for multimedia. DVD was used to play recorded multimedia such as movies. It was also used a place to store data from a computer. Blu-ray has become more popular than DVD as it has a higher quality. USB are used to store data outside the computer. USBs offer a lot of storage space some time up to 100Gb. USBs are still used today to share data with other people. These are used as a place to store data outside the computer. These are small but they can have a lot of storage space. The maximum capacity is 512Gb. These are used mainly in cameras to hold Video data and then to transport to a computer. These are still used today and are very popular in cameras. Cloud storage means that data is stored over the internet in a cloud and it could be accessed by any devise added to the cloud. This is the main way most people store information in the 2010s as the internet is becoming better and more accessible. This is not the safest way to store data as hackers could hack into the cloud through the internet. But this way is the easiest way to store data.

1. Research and summarize the history of how External Storage and Backup has changed over the years. Consider the following:
2. Typical speed, size, model numbers in the early 1990’s
3. Typical speed, size, model numbers in the early 2000’s
4. Typical speed, size, model numbers in the current time

External storage in the 1990s was in the form of floppy disks, flash drives, zip drives, DVD and cd. These forms were not too big in terms of storage, but the size in terms of dimensions was big. For floppy disks, the bigger the disk, the more data it can store. During the 2000s, the use of SD card and blue ray disks became popular. These new forms of data storage were smaller in size but had similar storage capacity. The use of floppy disks started to decrease. In today’s day, data is mainly stored on a cloud. Cloud storage has a lot of capacity despite it being on the internet. Around todays time, nobody uses floppy disks as they are not needed.

1. Research and summarize the main features and function of Network Connectivity. Consider the following:
2. Connection technology (e.g. Dial-Up, Ethernet, WiFi, BlueTooth, Fibre, etc.)
3. Upload and download speed
4. Security

<https://kids.kiddle.co/Network_card>

A Network interface card, NIC, or Network card is an electronic device that connects a computer to a computer network, usually a LAN. It is considered a piece of computer hardware. Today, most computers have network cards. Network cards let a computer exchange data with the network. To achieve the connection, network cards use a suitable protocol, for example CSMA/CD. Network cards usually implement the first two layers of the OSI model, that is the physical layer, and the data link layer. Today, most network cards use Ethernet. Other network types are ARCNET, introduced in 1977, LocalTalk or Token Ring. There are many network cards which are compatible to only respective software. depending on your computer architecture you have to find a compatible network card.They are needed to access the Internet and local networks, and they can function with custom networks types

1. Research and summarize the history of how Network Connectivity has changed over the years. Consider the following:
2. Typical speed, size, model numbers in the early 1990’s
3. Typical speed, size, model numbers in the early 2000’s
4. Typical speed, size, model numbers in the current time

<https://www.cozlink.com/pice-a272-2387-2388/article-73601.html>

“The first NIC was organized at Jackson Hole in 1996 by Tony Zador, who has played some role in organizing most of the rest. Other organizers have included Wulfram Gerstner, Andreas Herz, Peter Latham, Zach Mainen, Mayank Mehta, Sheila Nirenberg, and Alex Pouget. The goal of NIC is to bring together experimental and theoretical neuroscientists for small (60-80 people) invitation-only intensive three day workshops. The emphasis is on how new experimental and theoretical approaches can be combined to understand neural coding better. Most years there is a particular theme, but the overall spirit is maintained from year to year. Topics include information theoretic approaches; experimental approaches to understanding population coding (e.g. multi electrode recording); plasticity; and the possible importance of timing in neural transmission. Systems range from invertebrates to monkeys. The NIC meetings have traditionally been held at ski resorts. The afternoon schedule is kept available for informal discussion, on or off the slopes. Since 2000, NIC has been held outside the USA in Europe on even-numbered years (when it is called "NIC-E," or simply "NICE," for Europe; and NICI for India). However, in 2005 there was no NIC meeting; instead, participants were be encouraged to attend the larger Cosyne meeting.”

1. Research and summarize the main features and function of Printer Technology. Consider the following:
2. Printing Technology (e.g. Dot Matrix, Ink Jet, Laser, etc.)
3. Connection Technology (e.g. Parallel Port, USB, WiFi, Network, etc.
4. How printing has changed over the years

<https://whatis.techtarget.com/definition/printer>

“A printer is a device that accepts text and graphic output from a computer and transfers the information to paper, usually to standard size sheets of paper. Printers vary in size, speed, sophistication, and cost. In general, more expensive printers are used for higher-resolution color printing.

Personal computer printers can be distinguished as *impact* or *non-impact* printers. Early impact printers worked something like an automatic typewriter, with a key striking an inked impression on paper for each printed [character](https://whatis.techtarget.com/definition/character). The *dot-matrix* printer was a popular low-cost personal computer printer. It's an impact printer that strikes the paper a line at a time. The best-known non-impact printers are the *inkjet* printer, of which several makes of low-cost color printers are an example, and the [laser printer](https://whatis.techtarget.com/definition/laser-printer). The inkjet sprays ink from an ink cartridge at very close range to the paper as it rolls by. The laser printer uses a laser beam reflected from a mirror to attract ink (called *toner* ) to selected paper areas as a sheet rolls over a drum.

The four printer qualities of most interest to most users are:

* **Color:** Color is important for users who need to print pages for presentations or maps and other pages where color is part of the information. Color printers can also be set to print only in black-and-white. Color printers are more expensive to operate since they use two ink cartridges (one color and one black ink) that need to be replaced after a certain number of pages. Users who don't have a specific need for color and who print a lot of pages will find a black-and-white printer cheaper to operate.
* **Resolution:** Printer resolution (the sharpness of text and images on paper) is usually measured in dots per inch ([dpi](https://whatis.techtarget.com/definition/dots-per-inch-dpi)). Most inexpensive printers provide sufficient resolution for most purposes at 600 dpi.
* **Speed:** If you do much printing, the speed of the printer becomes important. Inexpensive printers print only about 3 to 6 sheets per minute. Color printing is slower. More expensive printers are much faster.
* **Memory:** Most printers come with a small amount of memory (for example, one [megabyte](https://searchstorage.techtarget.com/definition/megabyte)) that can be expanded by the user. Having more than the minimum amount of memory is helpful and faster when printing out pages with large images or tables with lines around them (which the printer treats as a large image).”

1. Explain and justify the processor and memory requirements for your ‘dream machine’ task. Discuss the following:
2. Minimum and “would be nice” requirements for the Computer Display

The PC must also have a high definition and high-quality monitor as that will help in the video streaming and media playback. The best monitor would be the SEIKI SE39UY04 39" 4K UHD LED HDTV

1. Minimum and “would be nice” requirements for External Storage and Backup

A lot of footage and media needs to be stored and transferred from camera to PC or PC to PC and that is why the external storage must be portable and large. The perfect external storage would be the Seagate 1TB Backup Plus Slim Portable Drive

1. Minimum and “would be nice” requirements for Network Connectivity

No major requirements are needed for network interface as most video editing happens on one computer. If there were several computers editing at the same time than the Intel EXPI9301CTBLK 10/100/1000Mbps PCI-Express Network Adapter – OEM would help link a LAN between those PCs.

1. Minimum and “would be nice” requirements for Printer Technology

No printer technology is needed as no pictures/files will be needed to be printed and only video will be produced.

**Level 3: Building Your Dream Machine**

1. Identify the minimum requirements for each component of your dream machine as follows::
   1. CPU processor chip speed and type

Intel – Core i7-8700K 3.7 GHz 6-Core Processor

* 1. Motherboard type

Asus – Prime Z370-A ATX LGA1151 Motherboard

* 1. RAM memory speed and size

Corsair – Vengeance LPX 32 GB (2 x 16 GB) DDR4-3000 Memory

* 1. HDD speed and size

BarraCuda 4TB

* 1. Display Monitor resolution, type, and size

SEIKI SE39UY04 39" 4K UHD LED HDTV

* 1. Graphics card resolution and type

Asus – GeForce GTX 1070 8 GB Video Card

* 1. Audio card type

ASUS Xonar DG 5.1 Channels 24-bit 96KHz PCI Interface Sound Card

* 1. Audio Speakers type  
     Audio engine A2+
  2. External backup type and size

Seagate 1TB Backup Plus Slim Portable Drive

* 1. Network interface requirements

Intel EXPI9301CTBLK 10/100/1000Mbps PCI-Express Network Adapter - OEM

* 1. Printing Technology

Not Needed

* 1. Other Peripherals (e.g. mouse, keyboard, joystick, etc.)

MOUSE: Razer Naga Chroma

KEYBOARD: Corsair Vengeance K70

1. Prioritize you list of components from question #1 from those that are essential down to those that would be nice.

Essentials:

* CPU
* GPU
* HDD
* Motherboard
* RAM
* Monitor

Would be nice:

* Audio card
* Audio speaker
* External backup storage
* Network interface
* Mouse
* Keyboard

1. Establish a target budget (cost) for your dream machine.
   1. Justify your cost based on your projected component needs.
   2. Justify your cost based on a realistic assessment of your application and target user

The budget for this dream machine is $3,000. The cost of essential components like CPU, RAM, HDD and GPU coast a lot, thus making the overall cost higher. This budget is suitable for the target user as most media producer are really rich, work on projects that are sponsored by other people or the project has a good outlook for the future with big profits. Therefore, the budget is justified and realistic.

1. Build your dream machine or locate a ready to buy machine using on-line vendor web sites.
   1. Find at least two sources for your dream machine
   2. Provide a copy of the cost and feature list summary for each source
   3. Explain how the machine from each source matches (or is different) from your ideal configuration

The PCs from both vendors are pretty much the same, the only major different is that the GPU is better from Canada Computer and the Monitor is better from Canada computers. Another major difference is that the cost of the PC from Canada computers cost $100 more than the PC from PC Part Picker. The PC from PC Part Picker also includes a PC tower, Windows 10 Pro and a CPU cooler.

Components from **PC Part Picker**

https://ca.pcpartpicker.com/list/hnQ96s

Components from **Canada Computers**

CPU processor chip speed and type

<https://www.canadacomputers.com/product_info.php?cPath=4_1210_65&item_id=112829>

Motherboard type

<https://www.canadacomputers.com/product_info.php?cPath=26_1207_1206_1514&item_id=132000>

RAM memory speed and size

<https://www.canadacomputers.com/product_info.php?cPath=24_311_1326&item_id=096123>

HDD speed and size

<https://www.canadacomputers.com/product_info.php?cPath=15_1086_210_212&item_id=104098>

Display Monitor resolution, type, and size

<https://www.canadacomputers.com/product_info.php?cPath=22_1195_700_1104&item_id=098373>

Graphics card resolution and type

<https://www.canadacomputers.com/product_info.php?cPath=43_1200_557_559&item_id=097867>

Audio card type

<https://www.canadacomputers.com/product_info.php?cPath=40&item_id=102722>

Audio Speakers type

<https://www.canadacomputers.com/product_info.php?cPath=35_663_656&item_id=066226>

External backup type and size

<https://www.canadacomputers.com/product_info.php?cPath=15_213_602&item_id=067603>

Network interface requirements

<https://www.canadacomputers.com/product_info.php?cPath=27_1048_1052&item_id=022090>

Mouse

<https://www.canadacomputers.com/product_info.php?cPath=21_279_275&item_id=062866>

Keyboard

<https://www.canadacomputers.com/product_info.php?cPath=21_273_274&item_id=102475>

Suggested on-line computer sources:

* [www.bestbuy.ca/](http://www.bestbuy.ca/)
* [www.dell.com/en-ca](http://www.dell.com/en-ca)
* [www.staples.ca](http://www.staples.ca)
* [www.tigerdirect.ca/](http://www.tigerdirect.ca/)
* [www.canadacomputers.com](http://www.canadacomputers.com)

**Level 4: Sharing Your Dream Machine**

1. Prepare a brochure documenting your dream machine options and choices.
   1. The target audience is other students in the class
   2. You should explain your target task (e.g. game computer) and how this affects configuration choices.

The task I was given was to create a dream machine for media production and video streaming. This means that the PC must be good at video editing and video playback. Most media production PCs are for big companies and corporations because media production is a big business, and this means that the budget for this pc will be big. Media production PCs are supposed to be fast and they must have a good CPU because video editing uses a lot of power. The monitors and the speakers of this type of PC must be good as when playing back the video, you must be able to video the video in high quality. The storage of this computer must also be big as footage will be stored in your PC and media files take up a lot of space.

* 1. You should explain your configuration choices in greater detail

A high-end GPU and a CPU is needed because rendering a video and editing it takes a lot of computing power. Best CPU choice would be the Intel i-9 and the best GPU would be the ASUS GeForce GTX 1070. For the same reasons as the GPU and CPU, the RAM needs to be better than the average home computer as RAM effects the power of the computer. An HDD with large storage capacity is needed as media files and stock footage will take up a lot of space. The perfect HDD would be the BarraCuda 8TB. For motherboards, it should be capable of expanding and adapting to different component as different media projects require different motherboards components like a bigger RAM. The motherboard that fits this criteria would be the Asus – Prime Z370-A ATX LGA1151 Motherboard. For audio, the PC must be able to playback audio with high quality as the PC will be used for Media streaming. The best audio speaker would be the Audio engine A2+ and the best audio card would be the ASUS Xonar DG 5.1 Channels 24-bit 96KHz PCI Interface Sound Card. The PC must also have a high definition and high-quality monitor as that will help in the video streaming and media playback. The best monitor would be the SEIKI SE39UY04 39" 4K UHD LED HDTV. A lot of footage and media needs to be stored and transferred form camera to PC or PC to PC and that is why the external storage must be portable and large. The perfect external storage would be the Seagate 1TB Backup Plus Slim Portable Drive. No major requirements are needed for network interface as most video editing happens on one computer. If there were several computers editing at the same time than the Intel EXPI9301CTBLK 10/100/1000Mbps PCI-Express Network Adapter – OEM would help link a LAN between those PCs. No printer technology is needed as no pictures/files will be needed to be printed and only video will be produced. The PC must have a mouse and a keyboard, as they are very helpful when video editing and a good muse and keyboard will increase the efficiency of video production. The best mouse would be Razer Naga Chroma and the best keyboard would be Corsair Vengeance K70.

* 1. Your two purchase options should be explained and compared

Components from **PC Part Picker**

https://ca.pcpartpicker.com/list/hnQ96s

Components from **Canada Computers**

CPU processor chip speed and type

<https://www.canadacomputers.com/product_info.php?cPath=4_1210_65&item_id=112829>

Motherboard type

<https://www.canadacomputers.com/product_info.php?cPath=26_1207_1206_1514&item_id=132000>

RAM memory speed and size

<https://www.canadacomputers.com/product_info.php?cPath=24_311_1326&item_id=096123>

HDD speed and size

<https://www.canadacomputers.com/product_info.php?cPath=15_1086_210_212&item_id=104098>

Display Monitor resolution, type, and size

<https://www.canadacomputers.com/product_info.php?cPath=22_1195_700_1104&item_id=098373>

Graphics card resolution and type

<https://www.canadacomputers.com/product_info.php?cPath=43_1200_557_559&item_id=097867>

Audio card type

<https://www.canadacomputers.com/product_info.php?cPath=40&item_id=102722>

Audio Speakers type

<https://www.canadacomputers.com/product_info.php?cPath=35_663_656&item_id=066226>

External backup type and size

<https://www.canadacomputers.com/product_info.php?cPath=15_213_602&item_id=067603>

Network interface requirements

<https://www.canadacomputers.com/product_info.php?cPath=27_1048_1052&item_id=022090>

Mouse

<https://www.canadacomputers.com/product_info.php?cPath=21_279_275&item_id=062866>

Keyboard

<https://www.canadacomputers.com/product_info.php?cPath=21_273_274&item_id=102475>

1. Share your brochure
   1. By uploading it to your repository
   2. By presenting it during the in-class tradeshow (date TBD)
2. Visit and report on other trade show presentations / brochures
   1. Complete the Passport Template (TBD) as you participate in the in-class tradeshow.

**Task & Function Signup**

|  |  |
| --- | --- |
| **Task** | **Student Name** |
| ***Game Computer*** |  |
| **Photo Editing & Organization** |  |
| ***Business Office Computer*** |  |
| ***Student Home Computer*** |  |
| ***Factory Floor Computer*** |  |
| ***Media Production and Streaming Computer*** |  |
| ***Web Surfing Computer*** |  |
| ***Game Computer*** |  |
| **Photo Editing & Organization** |  |
| ***Business Office Computer*** |  |
| ***Student Home Computer*** |  |
| ***Factory Floor Computer*** |  |
| ***Media Production and Streaming Computer*** |  |
| ***Web Surfing Computer*** |  |
| ***Game Computer*** |  |
| **Photo Editing & Organization** |  |
| ***Business Office Computer*** |  |
| ***Student Home Computer*** |  |
| ***Factory Floor Computer*** |  |
| ***Media Production and Streaming Computer*** |  |
| ***Web Surfing Computer*** |  |
| ***Game Computer*** |  |
| **Photo Editing & Organization** |  |
| ***Business Office Computer*** |  |
| ***Student Home Computer*** |  |
| ***Factory Floor Computer*** |  |
| ***Media Production and Streaming Computer*** |  |
| ***Web Surfing Computer*** |  |
|  |  |
|  |  |