Exercise – Components

1. **The following is a list of sockets and slots that are found on a motherboard that are used to connect components in a computer system. Use a search engine to 1) explain what each acronym stands for; 2) state the component(s) that are connected to them; and 3) benefits and drawbacks**

Slot/Socket	Meaning	Component	Benefits/Drawbacks
PCI	Peripheral Component Interconnect	older expansion cards like sound network, connector cards.	- Very high speed - Plug and play - Incompatible with older system - Can cost more
AGP	Automated Password Generator	Hardware device that takes input and generally and automatically generated a password randomly.	- Not that secure
PCI Express	Peripheral Component Interconnect Express	slots with modern expansion cards (sound cards, network cards (Wi-Fi, Ethernet and Bluetooth), connector cards like USB, FireWire, eSATA and other low-end graphics cards and can support 1 and/or 16 slots.	
Primary IDE	Integrated Development Environment	Contains a code editor that compiles and interprets as well as debugs using a single graphical interface (GUI). This also connects the motherboard and the computer disk storage devices (older).	

		OR slandered electronic interface connects Motherboard and the Computer Disk storage devices. (Older hard drive disks and optical drives)	
Secondary IDE	Integrated Development Environment		
DIMM	Dual Inline Memory Module	Contains one or more RAM chips and connects it to the computer motherboard.	- Acts like a high capacity DRAM chip - Memory controller does not need individual chips - Accesses cannot be smaller than the interfase
SATA	Serial Advanced Technology Attachment	connecting the modern hard disk drives, solid state drives and optical drives for data transfers.	- -increased data transfer speed - Sometimes require a special device driver for a computer to recognize and use the drive - cable only allows one SATA hard drive to be connected at a time
SCSI	Small computer System Interface	Connecting and transferring data between computers and peripheral decives. Defines commands, protocols, electrical, optical and logical interfaces.	- More expensive then IDE devices - Not widely supported - Create more noise and heat - Much faster - Wide range of applications are

			available - Better for storing and moving large amounts of data - Highly reliable

You can use the following website to help you.
http://www.buildcomputers.net/motherboard-components.html

2. **CPU Cache have different levels. What is the difference between L1, L2, and L3 cache?**

http://www.wisegeek.com/what-is-l3-cache.htm

Level 1	**Level 2**	**Level 3**
- Superfast as the CPU - Very small (allowing it to be fast)	- everything in the middle	-large -slower

If information was not found in Level one -> Level two-> Level three

3. **For the following CPU's determine:**
   What is the socket type?
   What is the frequency of the FSB?
   What is the amount of cache for each CPU?
   Find a motherboard that supports each CPU.
   a. **Intel Core i9-9900**
   Socket type: LGA 1551
   Frequency: 3.1 GHz
   Amount of Cache: 16 M
   b. **Intel Core i7-9700**
   Socket type: LGA 1151
   Frequency: 3GHz
   Amount of Cache: 12 MB
   c. **Intel Core i3-9100**
   Socket type: LGA 1151
   Frequency: 1.1 GHz
   Amount of Cache: 6MB
   d. **Intel Core i5-9500**
   Socket type: LGA 1151
   Frequency: 4.4 GHz
   Amount of Cache: 9M
   e. **Intel Core i5-9600K**
   Socket type: LGA 1151
   Frequency: 3.7 GHz

Amount of Cache: 9M

f. Intel Core i5-9400

Socket type: LGA 1151
Frequency: 2.9 GHz
Amount of Cache:

g. Intel Core i5-8600T

Socket type: FCLGA 1151
Frequency: 2.3 GHz
Amount of Cache: 9M

h. AMD Athlon 200GE

Socket type: Socket AM4
Frequency: 3.2 GHz
Amount of Cache: 4 MB

i. AMD A12-9800 AP

Socket type: Socket AM4
Frequency: 3.8 GHz
Amount of Cache: 4 GB

j. AMD Ryzen Threadripper 2990WX

Socket type: Threadripper
Frequency: 3.0 Ghz
Amount of Cache: 80 MB

http://www.cpu-world.com/Sockets/index.html
http://www.canadacomputers.com/
http://www.intel.com/technology/io/index.htm

4. **Describe CPU's with two or more cores. How do these differ from traditional CPU's?**
   http://www.wisegeek.com/what-is-a-dual-core-processor.htm

Dual core processors can easily handle data strings. One processor can process while the other can execute. This will be efficient and faster as two processors means 'two brains' of the computer working together.

5. **Summarize the twelve CPU Specifications explained in the following article:**
   http://www.hardware-revolution.com/12-cpu-specifications-explained-in-plain-english/

I. **Brand -**two choices include AMD or intel.
II. **Processor type –** process needs to be ideal for your use type (gaming or work)
III. **Mobile/ Desktop / server -**
IV. **Series –** includes core 2 duo, i7, etc.
V. **CPU socket type -**socket type matched with CPU socket type and is compatible
VI. **Core –** with a specific series type
VII. **Multi/dual/tipple/quad-** how many cores within the motherboard
VIII. **Frequency –** speed of which the processor is running at
IX. **FSB, hyper transport –** speed of what your processor runs by

X. **L3, L2 –** "on board" CPU memory (faster than RAM)
XI. **64-bit support –** 16 bit and 32 bit memory was small, as well as the processing time was high, switching to a 64 bit the processing time was decreased and is more efficient now
XII. **Manufacturing tech -** the smaller number in nm, means that it allows more transistors on the same surface to reduce the power consumption.
XIII. **Thermal power design –** how much power in watts is the processor consuming

6. **What is the difference between a Celeron processor and Pentium processor?** **http://computer.howstuffworks.com/question268.htm**

- Pentium processors is for keeping their old technology and make modifications to their former Core series processors.
- Celeron processors have a low performance CPU. Celeron is used almost the same as the Atom (designed for low power consumptions and used tablets and phones and have a smaller size comparable to another CPU's) but looking more into battery life. Current Generations do not use fans to cool them and is a big deal for noise and battery life.