PC Component And Network Device Worksheet

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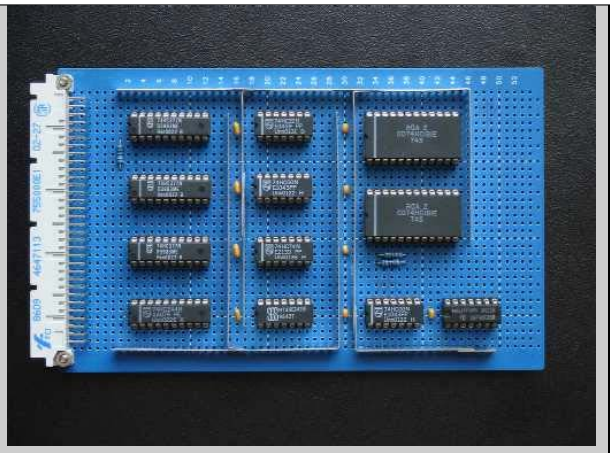
Component	Description	Image
Graphics Card	Crunches the maths for 3D games and controls the output to a monitor. This is used to make visual images that can be displayed on a monitor, it also supports the delivery and quality of graphics. It helps the computer produce graphical data with high clarity, colour, definition and overall appearance. A graphics card provides high-quality visual display by processing and executing graphical data using advanced graphical techniques and a lot of maths.	
Hard Disk Drive - HDD (Also known as the Hard Drive)	The HDD (Hard Disk Drive) is a non-volatile memory hardware device that permanently stores and retrieves data on a computer. A HDD uses a read/write magnetic head to read or write data onto the hard disk's surface. The HDD connects to the motherboard using an ATA, SCSI, or SATA cable. The HDD controls the positioning, reading and writing of where important data is permanently stored.	 
Power Supply Unit – (known as PSU)	A power supply provides components with electric power. Every computer system has a PSU that plugs into the mains electricity socket. It converts mains electricity into low voltage electricity for the computer components. Every PSU produces the same voltage but the power produced (the wattage) differs (for example, a 750W	

	PSU is more powerful than a 400W PSU). For example, computer power supplies convert AC (alternating current) to DC (direct current) and are generally located at the rear of the computer case, along with at least one fan.	
Motherboard	This is the main printed circuit board that connects all the different system components. It contains all the slots, ports and connections required to connect all the computer's hardware components. And it also allows slots for extra expansion cards (PCI-E).	
CPU – (Central Processing Unit, Microprocessor Chip)	The CPU is the primary component of a computer - it processes instructions. It also undertakes input/output operations to other parts of the computer and other technology systems (such as tablet or smartphones). It runs the operating system and applications, constantly receiving input from the user or active software programs.	
RAM - (Random Access Memory)	It is where you temporarily store instructions. This volatile memory, it is not stored forever. However, unlike ROM (Read Only Memory) or the hard drive, RAM is a volatile memory and requires power to keep the data accessible. If the computer is turned off, all data contained in RAM is lost. Because information is accessed randomly instead of sequentially like it is on a CD or hard drive, the computer can access the data much faster.	

SSD - Solid State Drive	An SSD does everything a hard drive does. But instead of magnets, the data is instead stored on interconnected flash memory chips. These memory chips retain the data, even when the computer is switched off. The chips can either be: permanently installed on the system's motherboard (as on some small laptops and ultra-portables), on a PCI-Express (PCI-E) card, or in a form similar to that of a HD Drive that's sized, shaped, and wired to slot in internally or externally for a laptop or desktop's hard drive (common on everything else). These flash memory chips are of a different type than is used in USB thumb drives, and are typically faster and more reliable. SSDs are consequently more expensive than USB thumb drives of the same capacities. **<u>Advantages</u>** Basically, SSD's are faster, they rely on transmitting data through electrical cells, which decreases the time to read a file or write to the drive. SSDs also: increase system boot times, they're completely silent, draw less power to operate and are more reliable than USB thumb drives. **<u>Disadvantages</u>** It is more expensive than HDD and USB thumb drives. The storage capacity is limited (typically 1TB max for laptops and 4TB max for desktops). SSD drives are also limited to the amount of read/writes that can be performed.	   

ROM - (Read Only Memory)	ROM is "built-in" computer memory, containing the data that can only be read by the computer. ROM contains the programming that allows your computer to be "booted up", or regenerated each time you turn it on. Unlike a computer's random-access memory (RAM), the data in ROM is not lost when the computer power is turned off. The ROM is sustained by a small long-life battery in your computer.	  
Optical Disk Drive	An optical drive is a piece of computer hardware that is used to read/write data on a disk. Examples of such disks are blank disks, CDs, DVDs, and Blu-ray Disks that can be inserted and removed from the drive. The sides of the optical drive have pre-drilled holes for easy mounting in the 5.25-inch drive bay in the computer case. The optical drive is mounted so the end with the connections faces inside the computer and the end with the drive bay faces outside. The back end of the optical drive contains a port for a cable that connects to the motherboard. Most optical drives also have jumper settings on the back end that define how the motherboard is to recognize the drive when more than one is present. These settings vary from drive to drive so check with your optical drive manufacturer for details.	  

	Optical drives are mostly thought of as internal devices, but increasingly more companies are leaving this device out of the design of laptops and some of the desktops such as mac mini have too. External optical drives are now available for a price. These external drives usually connect via a USB connection lead trailing out from behind the casing like some strange short tail.	
Heatsink Fan - HSF - (Heatsink and Fan)	Heatsinks help keep the CPU cool and prevent it from overheating. The Heatsink Fan is composed of a passive cooling unit (the heatsink) and a fan. It is a device that is attached to a microprocessor chip (CPU) to keep it from overheating by absorbing its heat and dissipating it into the air. A heatsink is an active cooling solution - used to cool down integrated circuits in computer system, commonly the CPU. But sometimes the heatsink itself can become too hot. This can happen if the CPU is running at full capacity for an extended period or if the air surrounding the computer is simply too hot. Therefore, a fan is often used in combination with the heat sink - to keep both the CPU and heatsink at an acceptable temperature. The fan moves cool air across the heat sink, pushing hot air away from the computer. The heat sink is usually made from a high-temperature conductive material - such as aluminium and copper, and the fan is a DC brushless fan, which is the standard used for computer systems.	  

ALU - Arithmetic Logic Unit	An ALU is a vital integrated, digital circuit within a CPU or GPU - that performs arithmetic and logic operations. Arithmetic instructions include: addition, subtraction, and shifting operations. The logic operations include: Boolean comparisons, such as AND, OR, XOR, and NOT operations.	
PCI-Express Card/Slots - (PCI-E) - Peripheral Component Interconnect Express	A PCI-Express card is a standard type of connection for internal devices in a computer. It connects the external devices to the internal components, ready for use. For Example, if you need more USB slots for external devices - you buy a PCI-Express card with USB connection ports (provided you have an available slot on your motherboard), and presto, extra USB ports. You can get pretty much any type of connection port on a PCI-Express card. Generally, PCI Express refers to the expansion slots on the motherboard that accept PCI-Express - based expansion cards. It also refers to the types of expansion cards themselves. PCI-Express has all but replaced AGP (Accelerated Graphics Port) and PCI (Peripheral Component Interconnect), both of which replaced the oldest widely-used connection type called ISA (Industry Standard Architecture).	  

Wireless Network Card	A wireless network adapter is a device that connects the computer to a network wirelessly. Advantages: It means you don't have to be connected to a network via a wired cable. Which means you can use devices wirelessly which makes the network more accessible (which ironically also creates the disadvantage as well) Disadvantages: -This method is not as secure however as the wired method, due to the wireless range at which the adapter can connect to devices. This can make the network more accessible to anyone within range, and they can hack the network.	
Network Card (Network Interface Card, NIC)	A Network Card provides the hardware interface between the computer and the network. It is used by computers to communicate with each other. The common technical terms for a network card are: a network adapter, a network interface card(NIC), a LAN adapter, an Ethernet Controller. However, in basic terms and without too much computer jargon, a network card is just the way a computer talks to another computer. Information is processed by the CPU, sent to the network card, which outputs it to another computer through either a hard-wired cable, or through a wireless connection. Wireless connections run through a wireless network card.	

Network Switch	It connects devices (usually via cables but it can also be connected to wirelessly). Its primary job is to take data from devices such as a computer and send it to a specific location. Advantages: It helps to stop the network from being slowed down by other network traffic. Switches increase available network bandwidth. Switches reduce the workload on individual computers. Switches increase network performance.	
Wireless Access Point	A Wireless Access Point is a special-purpose communication device on a wireless local area network (WLAN). Wireless Access Points act as a central transmitter and receiver of wireless radio signals. Wireless Access Points support Wi-Fi and are most commonly used to support public Internet hotspots and other business networks, where larger buildings and spaces need wireless coverage.	
Router	A router is a combination of a modem, switch and user. It connects your local area network (LAN) to the worldwide area network (WAN). It looks at where it can send the information, makes decisions and routes the data to a specific destination. It is a hardware device designed to receive, analyse and transfer or move	

	incoming data packets to another network. This device has more capabilities than the basic network functions of say a modem (hub) or a switch. Routers can analyse the data being sent over a network, change how it is packaged, and send it to another network, or over a different network.	
Modem	Short for modulator-demodulator. A modem is a device that enables a computer to transmit data over, telephone or cable lines. Computer information is stored digitally, whereas information transmitted over telephone lines is transmitted in the form of analogue waves. A modem converts between these two forms. A modem serves as a bridge between a local area network (LAN) and the Internet. Modems were used to modulate the signals on telephone lines so that digital information could be encoded, and transmitted over them, then demodulated, and decoded on the other end. The modem plugs into whatever type of infrastructure you have: cable, telephone, satellite, or fibre optics - and gives you a standard Ethernet cable output that you can plug into any router (or a single computer) and get an Internet connection.