

Just as buildings have architecture so do computers. **Computer architecture** doesn't deal with how a computer looks but how the different components connect together. All the different components of a computer connect onto a **motherboard**.

The most important and expensive part of a computer is the **CPU (Central Processing Unit)**. This is responsible for the **processing** carried out by the computer. **Data** (both programs and information) is stored in **RAM (Random Access Memory)**. The **northbridge** is a fast **chip** that allows the CPU to communicate with RAM and the **graphics card**. Because graphics, especially 3D graphics in games, require a huge amount of processing, there is often a **GPU (Graphics Processing Unit)** on the graphics card. The CPU, northbridge and GPU all use a lot of energy processing. They therefore have a **heat sink** and sometimes a **fan** to reduce their temperature.

The northbridge also communicates with the **southbridge** which communicates with **input/output devices**, the **BIOS (Basic Input/Output System)** and **storage devices**.

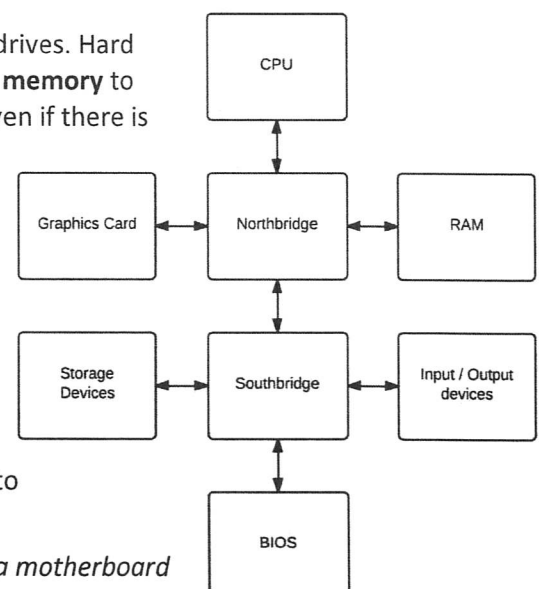
Primary storage is directly accessible by the CPU. It is either storage in **registers** on the CPU itself or in RAM. This storage is very fast but **volatile**, which means it will be lost if there is no power.

Secondary storage is devices such as hard disks and USB flash drives. Hard disks use magnetism to store data. **Flash drives** use **solid state memory** to store data. This is **non-volatile** which means it will be stored even if there is no power. It is slower than RAM and the CPU.

Different components on the motherboard are connected to each other with **buses**.

A CPU has a **clock speed** measured in **megahertz (MHz)** or **gigahertz (GHz)**. 1 MHz is 1 million calculations per second. 1 GHz is 1 billion calculations per second.

Buses also have a bus speed which is how much data it is able to move through the bus per second.



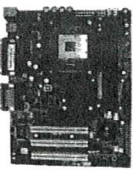



Components on a motherboard and their buses (represented by the arrows)

Q 2

Computer Architecture - Questions

1. How components of computers fit together is known as what? Fill in one circle. [1]
- northbridge
 southbridge
 computer slot
 computer architecture

2. For each photo of a computer component, write what it is. [4]

Component	What it is	Component	What it is
			
			

3. What two items are used to cool processors? Tick two boxes. [2]
- northbridge
 heat sink
 chip
 fan
4. Which of the following is primary storage? Fill in one circle. [1]
- Hard disk
 RAM
 Flash drive
 DVD

5. What does each of the following acronyms mean? [2]

RAM _____

CPU _____

6. Complete the following text with the words beneath. [4]

Inputs are processed by a _____ also known as a processor. The processor will communicate with the _____ by sending data through the _____ which connects to the _____ and then another bus that connects to the RAM.

- bus RAM northbridge CPU

7. What does each of the following acronyms mean? [2]

BIOS _____

GPU _____

8. For each of the following types of data storage, tick whether it is primary storage or secondary storage. One tick per row.

Storage	Primary storage	Secondary storage
RAM		
Hard disk		
Registers on CPU		
Flash drive		

Year 8 Art Homework

Name:

Class:

Using a pencil, try your best to complete the other side of Billie's face. Use light guidelines from the original image to help you get the features in the correct place and add a range of tonal effects.

