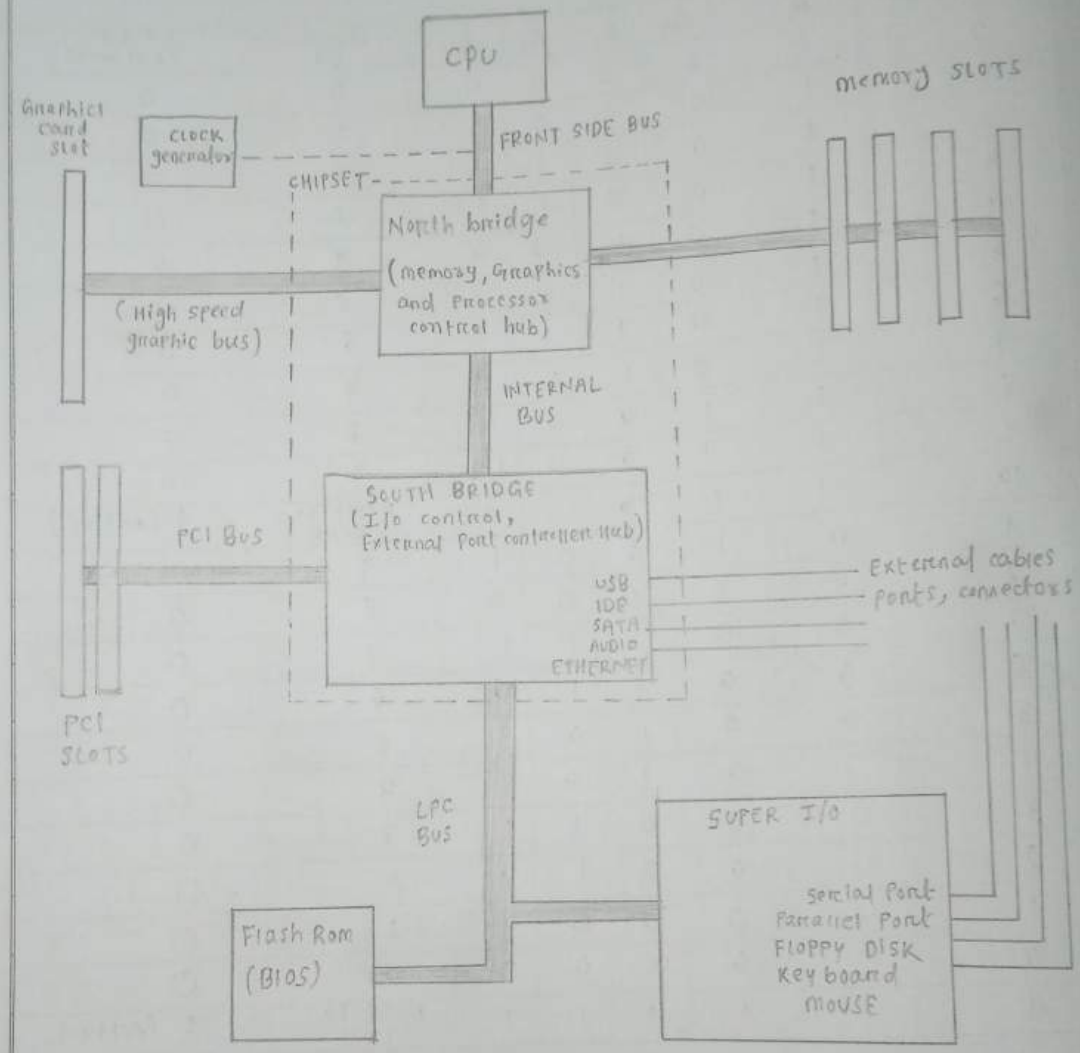
CPU
memory SLOTS
Graphics card slot
CLOCK generator
FRONT SIDE BUS
CHIPSET
North bridge
(memory, Graphics and Processor control hub)
(High speed graphic bus)
INTERNAL BUS
SOUTH BRIDGE
(I/o control, External Port connection Hub)
PCI Bus
USB
IDE
SATA
AUDIO
ETHERNET
External cables ports, connectors
PCI SLOTS
LPC BUS
SUPER I/O
serial Port
Parallel Port
Floppy DISK
Key board
mouse
Flash Rom
(BIOS)

Date

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AIM OF THE EXPERIMENT:

To study the different motherboard components and their functions.

MOTHERBOARD :-

(i) A motherboard (sometimes alternatively known as the main board, system board or mobo) is the main printed circuit board (PCB) found in computers and other expandable systems.

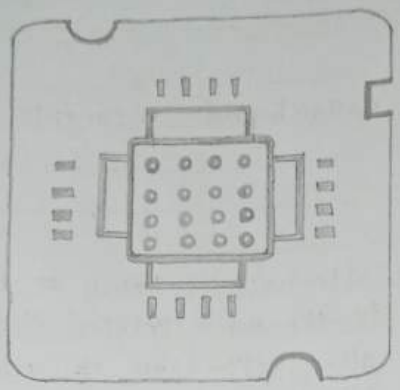
(ii) It holds many of the crucial electronic components of the systems. such as the central Processing unit (CPU) and memory, and provide connectors for other Peripherals.

(iii) other than bridging Internal components, the motherboard ports also allows you to connect external devices to the computers such as monitors, speakers, Headphones, USB devices etc.

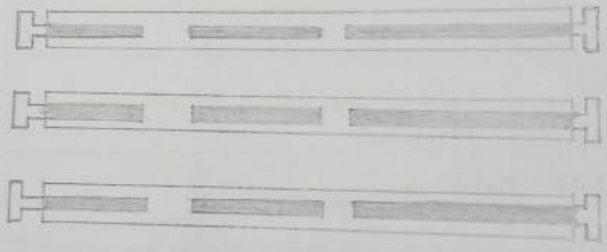
motherboard contains different components such as:-

- CPU socket
- memory slots
- cmos battery
- Random access memory slots
- ISA, PCI and AGP slots.
- Power connectors
- CHIPset
- southbridge
- Northbridge
- Graphical devices
- Back panel connectors and ports
- IDE connectors
- Fan Headers
- Power and Reset button.

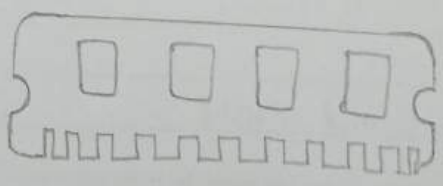
Teacher's Signature



(Block diagram of CPU SOCKET)



(Block Diagram of memory SOCKETS)



(RAM slot)

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CPU SOCKET :-

(i) A CPU socket or CPU slot is a mechanical component that provides mechanical and electrical connections between a microprocessor and a printed circuit board (PCB). This allows the CPU to be replaced without soldering.

(ii) common sockets have retention clips that apply a constant force, while must be overcum when a device is inserted.

(iii) For chips with a large number of pins, either zero insertion force (ZIF) sockets or land grid array (LGA) sockets are used instead.

MEMORY SLOTS :-

(i) A memory slot, memory socket or RAM slot is what allows computer memory (RAM) to be inserted into the computer.

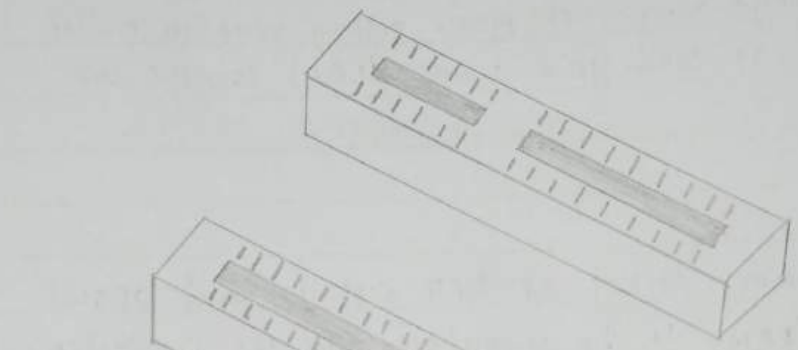
(ii) Depending on the motherboard, there will be usually 2 to 4 memory slots (sometimes more on high end motherboards) and are what determine the type of RAM used with the computer.

(iii) The most common types of RAM are SDRAM and DDR for desktop computers and SODIMM for laptop computers, each having various types and speeds.

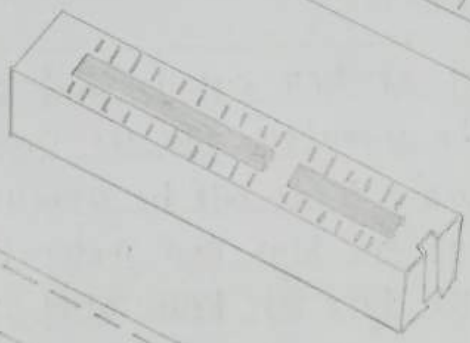
(iv) There are various types of RAMs like 72 PIN SIMM, 168 Pin SD-RAM, 144 pin SO-DIMM for SD-RAM, 184 Pin DDR-RAM, 184 Pin RD-RAM, 240 Pin DDR-2 RAM, 168 Pin DIMM, 240 Pin DDR3-RAM.

Teacher's Signature _____

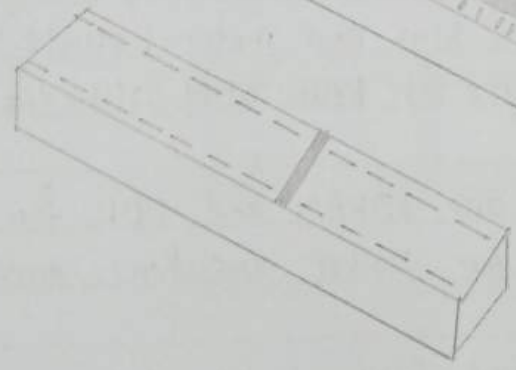
(cmos battery)



(AGP slot)



(PCI slot)



(ISA slot)

Date

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CMOS BATTERY :-

Non-volatile BIOS memory refers to a small memory on PC motherboards that is used to store BIOS settings. It was traditionally called CMOS RAM because it is used a volatile, low power complementary metal oxide semiconductor (CMOS) SRAM powered by a small battery when system power was off.

ISA, PCI and AGP SLOTS :-

ISA :- Industry standard architecture is an 8 bit or 16 bit parallel bus system that allowed upto 6 devices to be connected to a PC. virtually all IBM-compatible PCs made before the Pentium were based on the ISA (IBM's PC AT) bus. This asynchronous bus architecture uses 16 bit address and an 8-MHz clock and handles a maximum data throughput of 2MB/s to 3MB/s.

AGP :- Accelarates Graphics Port is a high speed point to point channel for attaching a video card to a computer's motherboard. The primary advantage of AGP over PCI is that it provides a dedicated pathway between the slot and the processor. rather than sharing the PCI bus.

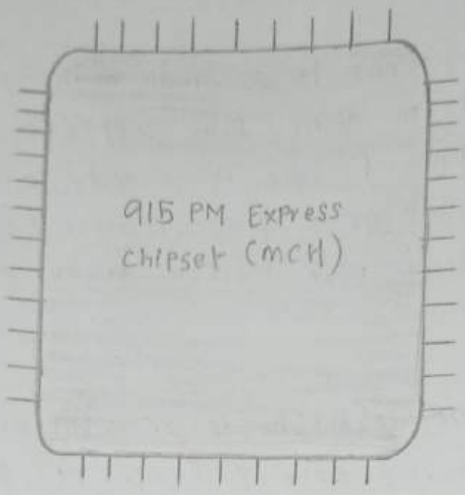
PCI :- Peripheral component interconnect bus uses a local bus system; this system is independent of the processor bus speed. The PCI architecture incorporates its own chip set which link the local bus to the main bus, these links are called bridges.

There are two bridges :-

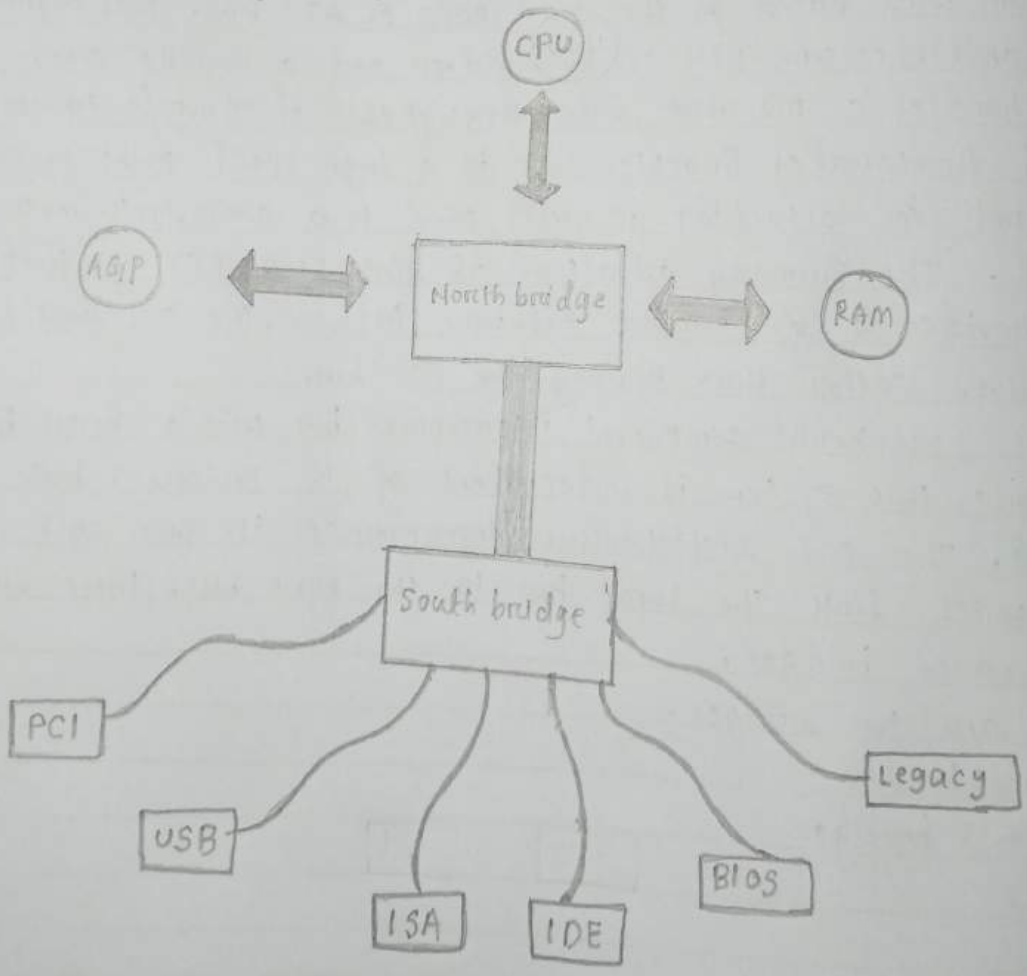
(i) North bridge

(ii) South bridge.

Teacher's Signature



(Diagram of chipset)



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CHIPSET :-

(i) A chipset is a set of electronic components in an integrated circuit that manages the data flow between the processor, memory and peripherals. It is usually found in the motherboard of a computer. chipsets are usually designed to work with a specific family of microprocessors.

(ii) Because it controls communications between the processor and external devices, the chipset plays a crucial role in determining system performance.

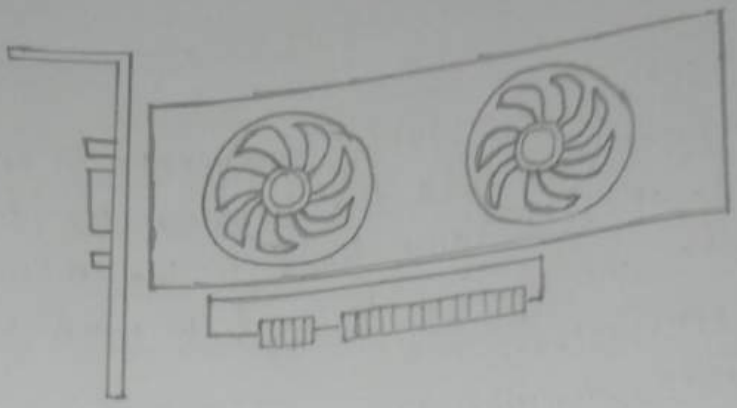
SOUTHBRIDGE :-

The southbridge is one of the two chips in the core logic chipset on a personal computer (PC) motherboard, the other being the north bridge. The southbridge typically implements the slower capabilities of the motherboard in a northbridge/southbridge chipset computer architecture.

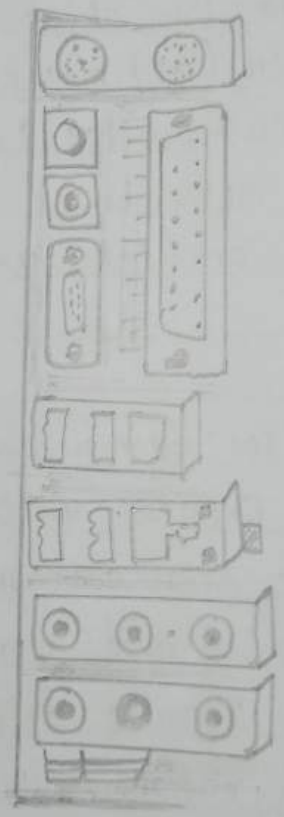
NORTHBRIDGE :-

The northbridge typically handles communication among the CPU, in some cases RAM, and PCI Express video cards, and the southbridge. some northbridge also contains integrated video controllers, also known as Graphics and memory controller hub (GCMH) in intel systems. Because different processors and RAM require different signaling, a given north bridge will typically work with only one or two classes of CPUs and generally only one type of RAM.

Teacher's Signature



(Diagram of CPU)



(Diagram of back Panel)

Date

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GRAPHICAL DEVICES

A video card (also called video adapter, display card, graphics card, graphic board, display adapters and some times Preceded by the word discrete or dedicated to emphasize the distinction between this implementation and integrated graphics) is an expansion card which generates a feed of output images to a display.

BACK PANEL CONNECTORS AND PORTS :-

(i) The back Panel connectors and Ports of a device of a PC motherboard, laptop or other electronics.

(ii) It includes Power and videoPorts, HDMI PORT, DISPLAY, VGA Port, DVI Port.

(iii) It includes audio Ports like 3.5 mm audio Jacks and optical audio for High quality digital audio output.

(v) It contains USB Ports (Type-A, Type-C, Thunderbolt) for High speed data and video transfer.

1) It also supports Network connectivity Provided by Ethernet Port and wi-fi Antenna connectors.

11) Includes Peripheral and expansion Ports like PS/2 Port, serial (com) Port, Parallel (LPT) Port and eSATA Port.

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