CH. 4 THE COMPONENTS OF THE SYSTEM UNIT

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THE SYSTEM UNIT

- System unit is case that has electronic components of the computer used to process data.

- A motherboard or also know as system board, is the main circuit board of the system.

THE SYSTEM UNIT

o A chip is a small piece of semi-conducting material, usually silicon, on which integrated circuits are etched.

o Integrated circuit contains many microscopic pathways capable of carrying electrical current.

o Most chips are not much bigger than one half inch square.

PROCESSOR

- The central processing unit (CPU) interprets and carries out basic commands that run a computer.

- Multi-core processor is one chip with two or more separate processor cores.

- Dual core processor is a chip that has two separate processor cores.
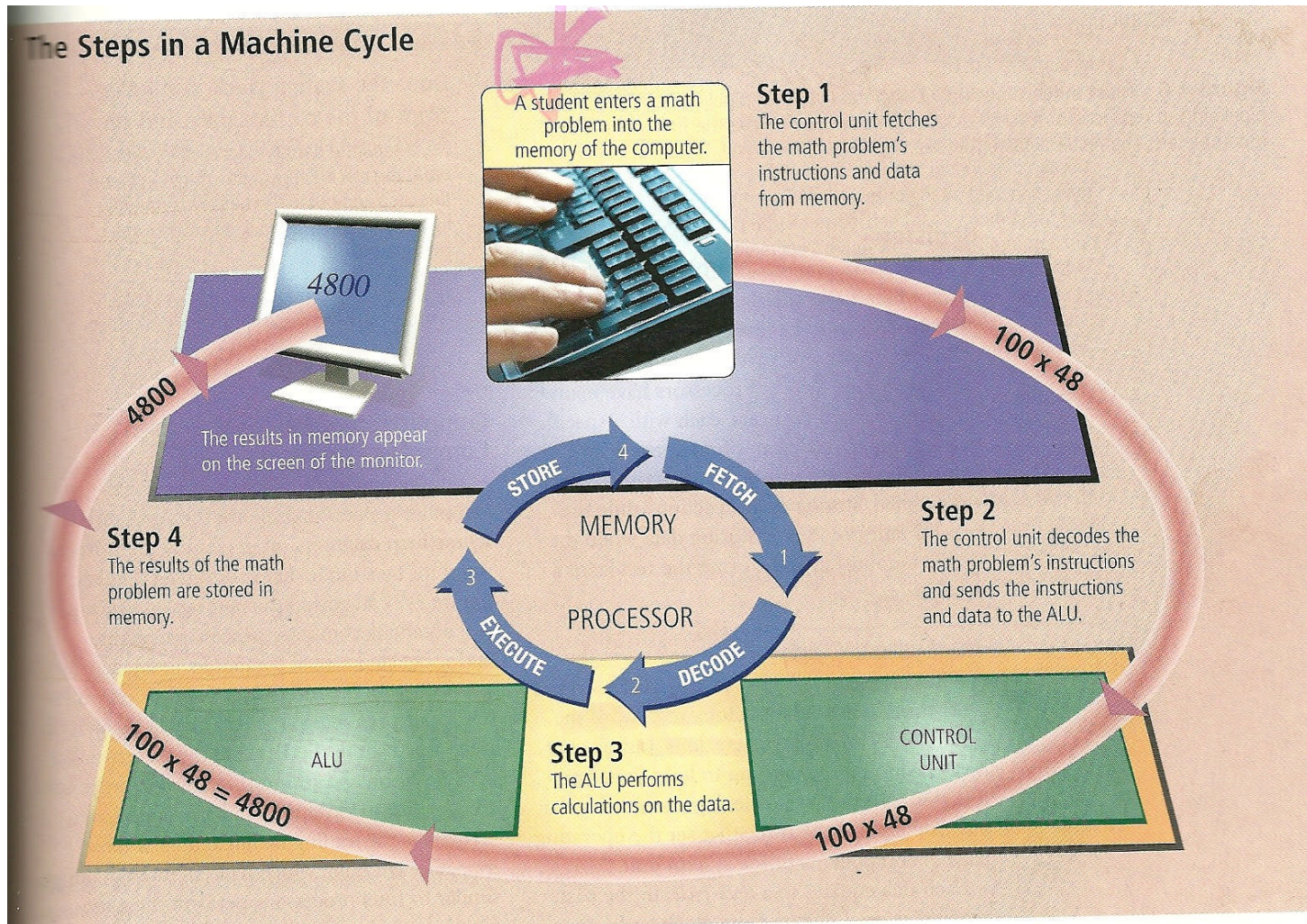
PROCESSOR

- Quad core possessor is a chip with four separate processor cores.

- A control unit is the component of the processor that helps to direct and coordinate most of the functions in the computer.

- Arithmetic logic unit (ALU) is also a component of the processor, it performs arithmetic, comparison, and other operations.

PROCESSOR

The Steps in a Machine Cycle

A student enters a math problem into the memory of the computer.

Step 1
The control unit fetches the math problem's instructions and data from memory.

Step 2
The control unit decodes the math problem's instructions and sends the instructions and data to the ALU.

Step 3
The ALU performs calculations on the data.

Step 4
The results of the math problem are stored in memory.

The results in memory appear on the screen of the monitor.

STORE — FETCH — DECODE — EXECUTE

MEMORY

PROCESSOR

ALU

CONTROL UNIT

4800

100 x 48

100 x 48 = 4800

100 x 48

PROCESSOR

- A processor contains small, high speed storage locations, called registers that temporarily hold instructions and data.

- The processor relies on a system clock that controls the timing of all the computer operations.

- The clock speed is measured by the number of ticks per second.

DATA REPRESENTATION

- The binary system is a number system that has just two unique digits, 0 and 1.

A bit also know as binary digit, is the smallest unit of data the computer can process.

A byte is when eight bits are grouped together as a unit.

PROCESSOR

- One gigahertz (GHz) = one billion ticks of the system clock per second.

- Computers today might use a high speed processor, in the Intel Core family.

MEMORY

- Memory consists of electronic components that store instructions waiting to be executed by the processor, data needed by those instructions, and the results of processing the information.

- There are 2 types of
  memory, Volatile is
  temporary and nonvolatile
  is permanent memory.
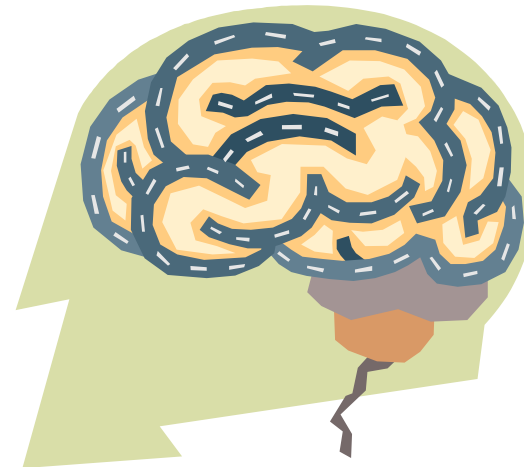
MEMORY SIZES

- Kilobyte (KB OR K) is equal to exactly 1,024 bytes.

- Megabyte (MB) is equal to about one million bytes.

- Gigabyte (GB) is equal to about one million bytes.

- Terabyte (TB) is equal to approximately one trillion bytes.

MEMORY TERMINOLOGY

- Read only memory (ROM)

- Flash Memory

- Complementary metal-oxide semiconductor (CMOS)

- Access time

- Nanosecond

EXPANSION SLOTS AND ADAPTER CARDS

- Expansion slots

- Adapter card

- Sound card

- Video card

- Plug and Play

PORTS AND CONNECTORS

A port is the point at which a peripheral attaches/ communicates with a system unit so that the peripheral can send data to the computer.

A jack is used to identify audio and video ports.

A connector joints a cable to a port.

Universal serial bus port (USB)

PORTS AND CONNECTORS

- FireWire port can connect multiple types of devices that require faster data speeds.

- FireWire hub plugs in a FireWire port on the system unit and contains multiple FireWire ports in which you plug cables form the FireWire devices.

- SCSI port

PORTS AND CONNECTORS

- eSATA

- Bluetooth

- IrDA

- Serial

- MIDI

PORT TYPES

Port Types

Type	Picture	Type	Picture	Type	Picture
Audio in		HDMI port		Serial	
Cable TV		Headphones		Side surround sound	
Center surround sound/subwoofer		Keyboard		S/PDIF in	
Composite video in		Microphone		S/PDIF out	
Digital Video Interface (DVI)		Monitor		Speaker	
eSATA port		Mouse		S-video	
FireWire		Network		Telephone line in	
FM reception		Rear surround sound		USB	

BUSES

Buses are used to transfer bits from input devices to memory, from memory to the processor, from the processor to memory, and from memory to output/storage devices.

Word size is the number of bits the processor can interpret and execute at a given time.
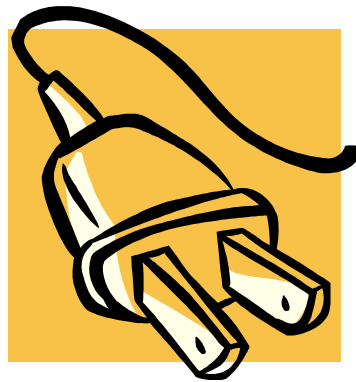
BAYS

- A bay is an opening inside the system unit in which you can install additional equipment.

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- Drive bay is a regular opening that typically holds disk drives.

- External bay allows user to access opening in the bay from outside the system unit.

- Internal bay is concealed entirely within the system unit.

POWER SUPPLY

- A power supply is the component of the system unit that converts the wall outlet AC power into the DC power.

- AC adapter is an external power supply. An example would be a cable modem, speakers, or a printer.

THE END