

Digital Electronics

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- Makes it possible for computer to manipulate simple “on” and “off” signals to perform complex tasks
- **Data** - is defined as the symbols that represent things, people, events and ideas
- Computers store data in **digital** format as a series of 1s and 0s (known as **binary** code)
 - Each 1 and 0 is called a **bit**
 - Eight bits is called a **byte**
- The term bit comes from “**binary digit**”



Digital Electronics



- **Numeric Data**

- Base 2
- The numbers that might be used in arithmetic operations
- The following table lists some decimal numbers and their binary equivalent
- Encoded differently

DECIMAL (BASE 10)	BINARY (BASE 2)
0	0
1	1
2	10
3	11
4	100
5	101
6	110
7	111
8	1000
9	1001
10	1010
11	1011
1000	1111101000

Microprocessor



- **Microprocessor**

- Sometimes known as *processor*.
- An integrated circuit designed to process instructions
- The most significant component of computer and usually the most expensive single component.
- Executes instructions that are provided by a computer program

How does a computer store and transport all those bits?



- Bits take the form of electrical pulses that can travel over circuits

- The circuits, chips, and mechanical components forming a computer are designed to work with bits

- These components are housed within the computer's system unit

Data Representation

How is a letter converted to binary form and back?



Step 1.
The user presses the capital letter **T** (shift+T key) on the keyboard.



Step 2.
An electronic signal for the capital letter **T** is sent to the system unit.



Step 4.
After processing, the binary code for the capital letter **T** is converted to an image, and displayed on the output device.

Step 3.
The signal for the capital letter **T** is converted to its ASCII binary code (01010100) and is stored in memory for processing.

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Questions?
Clarifications?

