

DEPARTMENT OF COMPUTER SCIENCE

Computer

KEY NOTES



MEMORY

Memory is basically a device that has the capacity to store information. A memory unit is the amount of data that the memory can hold. Besides, we measure this storage capacity in terms of bytes. Moreover, there are different units of memory as per the requirement. Before studying the units of memory let us know about the memory.

Parts of Memory

Primary Memory

This is the internal memory that stores the data and instructions of the CPU. It is volatile in nature (data is lost when the power is disconnected).

The primary memory has two types:

RAM (Random Access Memory)

As per the name, data can be accessed randomly and quickly.

ROM (Read Only Memory)

As per the name, we can only read data and cannot write (store) to it.

Secondary Memory

As we know that the primary memory is volatile therefore, we need some devices to store the data permanently so we use some external storage devices for this purpose which we name as the secondary memory. Some examples: CD, DVD, etc.

Units of Memory

The storage capacity of the memory is expressed in various units of memory. These are as follows:

Bit

A microprocessor uses binary digits 0 and 1 to decide the OFF and ON state respectively, of various circuits. Furthermore, a bit is the smallest unit of representation in the binary language.

Nibble

A nibble is a collection of 4 bits.

Byte

A byte is the representation of a group of 8 bits. Moreover, a byte is a unit that expresses any word, symbol, or character in the computer language. Besides, computer memory is always in terms of multiples of bytes.

Word

A computer word is similar to a byte, as it is also a group of bits. Moreover, a computer word is fixed for each computer. At the same time it varies from computer to computer. Besides, the length of a computer word is the word-size or word length. Therefore, a computer stores information in the form of computer word.

Kilobyte

It is the most common unit of memory which is the smallest of all. But, it is greater than the byte.

The abbreviation for kilobytes is 'KB'.

It contains 1000 bytes. Besides, it is synonyms to kilo bytes which contain $1024 (2^{10})$ bytes.

Megabytes usually measures the size of text documents, graphics of websites, individual files, etc.

Megabyte

The abbreviation for megabyte is 'MB'.

It contains 1,000,000 bytes. Besides, it is synonyms to megabytes which contains $1048576 (2^{20})$ bytes.

Kilobytes usually measure the size of large files. For example, high-resolution images, songs, storage of compact disks, etc.

Gigabyte

The abbreviation for the gigabyte is 'GB' or 'gigs'.

It contains 1,000,000,000 bytes. Besides, it is synonyms to Giga bytes which contain $1073741824 (2^{30})$ bytes.

Kilobytes usually measure the capacity of storage devices.

Terabyte

The abbreviation for terabytes is 'TB'.

It contains one trillion bytes. Besides, it is synonyms to terabytes which contains 2^{40} bytes.

Kilobytes usually measure the capacity of large storage devices, for example, HDDs (Hard Disk Drives).

Petabyte

The abbreviation for petabyte is 'PB'.

It contains 10^{15} bytes. Besides, it is synonyms to petabytes which contains 2^{50} bytes.

Petabytes usually measure the total data storage in large networks or server farms. For example, the data in Google or Facebook data servers is around more than 10 PBs.

Exabyte

The abbreviation for Exabyte is 'EB'.

It contains 10^{18} bytes. Besides, it is synonyms to Exabyte's which contains 2^{60} bytes.

The Exabyte unit is so large that it does not even measure the storage of large cloud servers. Rather, it can be used to measure the amount of data transfer over the internet for a certain time limit.

Zettabyte

The abbreviation for zettabyte is 'ZB'.

It contains 10^{21} bytes. Besides, it is synonyms to zettabytes which contains 2^{70} bytes

It can measure a huge amount of data. In fact, the whole data in the world is just a few zettabytes.

Yottabyte

The abbreviation for yottabyte is 'YB'.

It contains 10^{24} zettabytes. Besides, it is synonyms to yottabytes which contains 2^{80} bytes.

It is a tremendously huge unit of measurement. Therefore, it has no practical use.

F1 to F12 keys and their functions.

F1

- Almost always used as the help key, almost every program opens a help screen when this key is pressed.
- Enter CMOS Setup.
- Windows Key + F1 would open the Microsoft Windows help and support center.
- Open the Task Pane.

F2

- In Windows renames a highlighted icon, file, or folder in all versions of Windows.
- Alt + Ctrl + F2 opens document window in Microsoft Word.
- Ctrl + F2 displays the print preview window in Microsoft Word.
- Quickly rename a selected file or folder.
- Enter CMOS Setup.
- Reduce laptop screen brightness (on some laptops).

F3

- Often opens a search feature for many programs including Microsoft Windows when at the Windows Desktop.
- In MS-DOS or Windows command line F3 will repeat the last command.
- Shift + F3 will change the text in Microsoft Word from upper to lower case or a capital letter at the beginning of every word.
- Windows Key + F3 opens the Advanced find window in Microsoft Outlook.
- Open Mission Control on an Apple computer running Mac OS X.
- Increase laptop screen brightness (on some laptops).

F4

- Open find window in Windows 95 to XP.
- Open the address bar in Windows Explorer and Internet Explorer.
- Repeat the last action performed (Word 2000+).
- Alt + F4 closes the program window currently active in Microsoft Windows.
- Ctrl + F4 closes the open window within the current active window in Microsoft Windows.

F5

- In all modern Internet browsers, pressing F5 will refresh or reload the page or document window.
- Open the find, replace, and go to window in Microsoft Word.
- Starts a slideshow in PowerPoint.
- Puts on the laptop keyboard backlight in some laptops. Also varies the brightness and or puts off the light.

F6

- Move the cursor to the address bar in Internet Explorer, Mozilla Firefox, and most other Internet browsers.
- Ctrl + Shift + F6 opens to another open Microsoft Word document.

- Reduce laptop speaker volume (on some laptops).
- Mute laptop speaker (on some laptops).

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F7

- Commonly used to spell check and grammar check a document in Microsoft programs such as Microsoft Word, Outlook, etc.
- Shift + F7 runs a Thesaurus check on the word highlighted.
- Turns on Caret browsing in Mozilla Firefox.
- Increase laptop speaker volume (on some laptops). Or reduce speaker volume in others.

F8

- Function key used to enter the Windows startup menu, commonly used to access Windows Safe Mode.
- Used by some computers to access the Windows recovery system, but may require a Windows installation CD.
- Displays a thumbnail image for all workspaces in Mac OS.
- Increase laptop speaker volume (on some laptops).

F9

- Refresh document in Microsoft Word.
- Send and receive e-mail in Microsoft Outlook.
- Opens the Measurements toolbar in Quark 5.0.

- Reduce laptop screen brightness (on some laptops).
- With Mac OS 10.3 or later, displays a thumbnail for each window in a single workspace.
- Using the Fn key and F9 at the same time opens Mission Control on an Apple computer running Mac OS X

F10

- In Microsoft Windows activates the menu bar of an open application.
- Shift + F10 is the same as right-clicking on a highlighted icon, file, or Internet link.
- Access the hidden recovery partition on Compaq, HP, and Sony computers.
- Enter CMOS Setup on some computers.
- Increase laptop screen brightness (on some laptops)
- With Mac OS 10.3 or later, shows all open Windows for the active program.

F11

- Enter and exit full screen mode in all modern Internet browsers.
- Ctrl + F11 as computer is starting to access the hidden recovery partition on many Dell computers.
- Access the hidden recovery partition on e Machines, Gateway, and Lenovo computers.
- With Mac OS 10.4 or later, hides all open windows and shows the Desktop.

F12

- Open the Save as window in Microsoft Word.
- Ctrl + F12 opens a document in Word.
- Shift + F12 saves the Microsoft Word document (like Ctrl + S).
- Ctrl + Shift + F12 prints a document in Microsoft Word.
- Preview a page in Microsoft Expression Web.
- Open Firebug or browser debug tool.
- With an Apple running Mac OS 10.4 or later,
- F12 shows or hides the Dashboard.
- Access the list of bootable devices on a computer at startup, allowing you to select a different device to boot from (hard drive, CD or DVD drive, floppy drive, USB drive, and network).
- Mutes the microphone on some laptops.

Windows keyboard shortcuts

Copy:	Ctrl + C
Cut:	Ctrl + X
Paste:	Ctrl + V
Maximize Window:	F11 or Windows logo key + Up arrow
Open Task View:	Windows logo key + Tab
Display and hide the desktop:	Windows logo key + D
Switch between open apps:	Alt + Tab
Open the Quick Link menu:	Windows logo key + X
Lock your PC:	Windows logo key + L
To refresh graphics:	Ctrl + shift + Win + B

Depending on your hardware, you can use **Windows logo key + PrtScreen** to take a screenshot, or use **Fn + Windows logo key + Spacebar**.

BASIC SHORTCUT KEYS

Alt + F	File menu options in current program
Alt + E	Edit options in current program
F1	Universal help (for all programs)
Ctrl + A	Select all text
Ctrl + X	Cut selected item
Shift + Del	Cut selected item
Ctrl + C	Copy selected item
Ctrl + Ins	Copy selected item
Ctrl + V	Paste
Shift + Ins	Paste
Home	Go to beginning of current line
Ctrl + Home	Go to beginning of document
End	Go to end of current line
Ctrl + End	Go to end of document
Shift + Home line	Highlight from current position to beginning of line
Shift + End	Highlight from current position to end of line

Ctrl + f	Move one word to the left at a time
Ctrl + g	Move one word to the right at a time

WORD® SHORTCUT KEYS

Ctrl + A	Select all contents of the page
Ctrl + B	Bold highlighted selection
Ctrl + C	Copy selected text
Ctrl + X	Cut selected text
Ctrl + N	Open new/blank document
Ctrl + O	Open options
Ctrl + P	Open the print window
Ctrl + F	Open find box
Ctrl + I	Italicize highlighted selection
Ctrl + K	Insert link
Ctrl + U	Underline highlighted selection
Ctrl + V	Paste
Ctrl + Y	Redo the last action performed
Ctrl + Z	Undo last action
Ctrl + G	Find and replace options
Ctrl + H	Find and replace options
Ctrl + J	Justify paragraph alignment
Ctrl + L	Align selected text or line to the left
Ctrl + Q	Align selected paragraph to the left
Ctrl + E	Align selected text or line to the center
Ctrl + R	Align selected text or line to the right
Ctrl + M	Indent the paragraph
Ctrl + T	Hanging indent
Ctrl + D	Font options
Ctrl + Shift + F	Change the font

Ctrl + Shift + >	Increase selected font +1
Ctrl +]	Increase selected font +1
Ctrl + Shift + <	Decrease selected font -1
Ctrl + [Decrease selected font -1
Ctrl + Shift + *	View or hide non printing characters
Ctrl + f	Move one word to the left
Ctrl + g	Move one word to the right
Ctrl + h	Move to beginning of the line or paragraph
Ctrl + l	Move to the end of the paragraph
Ctrl + Del	Delete word to right of cursor
Ctrl + Backspace	Delete word to left of cursor
Ctrl + End	Move cursor to end of document
Ctrl + Home	Move cursor to beginning of document
Ctrl + Space	Reset highlighted text to default font
Ctrl + 1	Single-space lines
Ctrl + 2	Double-space lines
Ctrl + 5	1.5-line spacing
Ctrl + Alt + 1	Change text to heading 1
Ctrl + Alt + 2	Change text to heading 2
Ctrl + Alt + 3	Change text to heading 3
F1	Open help
Shift + F3	Change case of selected text
Shift + Insert	Paste
F4	Repeat last action performed (Word 2000+)
F7	Spell check selected text and/or document
Shift + F7	Activate the thesaurus
F12	Save as
Ctrl + S	Save
Shift + F12	Save

Alt + Shift + D

Insert the current date

Alt + Shift + T

Insert the current time

Ctrl + W

Close document

EXCEL® SHORTCUT KEYS

F2

Edit the selected cell

F5

Go to a specific cell

F7

Spell check selected text and/or document

F11

Create chart

Ctrl + Shift + ;

Enter the current time

Ctrl + ;

Enter the current date

Alt + Shift + F1

Insert new worksheet

Shift + F3

Open the Excel® formula window

Shift + F5

Bring up search box

Ctrl + A

Select all contents of worksheet

Ctrl + B

Bold highlighted selection

Ctrl + I

italicize highlighted selection

Ctrl + C

Copy selected text

Ctrl + V

Paste

Ctrl + D

Fill

Ctrl + K

Insert link

Ctrl + F

Open find and replace options

Ctrl + G

Open go-to options

Ctrl + H

Open find and replace options

Ctrl + U

Underline highlighted selection

Ctrl + Y

Underline selected text

Ctrl + 5

Strikethrough highlighted selection

Ctrl + O

Open options

Ctrl + N

Open new document

Ctrl + P	Open print dialog box
Ctrl + S	Save
Ctrl + Z	Undo last action
Ctrl + F9	Minimize current window
Ctrl + F10	Maximize currently selected window
Ctrl + F6 S	witch between open workbooks/windows
Ctrl + Page up & Page Down	Move between Excel® worksheets in the same document
Ctrl + Tab	Move between two or more open Excel® files
Alt + =	Create formula to sum all of above cells
Ctrl + ‘	Insert value of above cell into current cell
Ctrl + Shift + !	Format number in comma format
Ctrl + Shift + \$	Format number in currency format
Ctrl + Shift + #	Format number in date format
Ctrl + Shift + %	Format number in percentage format
Ctrl + Shift + ^	Format number in scientific format
Ctrl + Shift + @	Format number in time format
Ctrl + g	Move to next section of text
Ctrl + Space	Select entire column
Shift + Space	Select entire row
Ctrl + W	Close document

MICROSOFT® WINDOWS® SHORTCUT KEYS

Alt + Tab	Switch between open applications
Alt +	
Shift + Tab	Switch backwards between open applications
Alt + Print	Screen Create screen shot for current program
Ctrl + Alt + Del	Reboot/Windows® task manager
Ctrl + Esc	Bring up start menu
Alt + Esc	Switch between applications on taskbar

F2	Rename selected icon
F3	Start find from desktop
F4	Open the drive selection when browsing
F5	Refresh contents
Alt + F4	Close current open program
Ctrl + F4	Close window in program
Ctrl + Plus Key	Automatically adjust widths of all columns in Windows Explorer
Alt + Enter	Open properties window of selected icon or program
Shift + F10	Simulate right-click on selected item
Shift + Del	Delete programs/files permanently
Holding Shift During Boot up Boot safe mode or bypass system files Holding Shift During Boot up When putting in an audio CD, will prevent CD Player from playing	

WINKEY SHORTCUTS

WINKEY + D	Bring desktop to the top of other windows
WINKEY + M	Minimize all windows
WINKEY +	
SHIFT + M	Undo the minimize done by WINKEY + M and WINKEY + D
WINKEY + E	Open Microsoft Explorer
WINKEY + Tab	Cycle through open programs on taskbar
WINKEY + F	Display the Windows® Search/Find feature
WINKEY +	
CTRL + F	Display the search for computers window
WINKEY + F1	Display the Microsoft® Windows® help
WINKEY + R	Open the run window
WINKEY +	Pause /Break Open the system properties window
WINKEY + U	Open utility manager
WINKEY + L	Lock the computer (Windows XP® & later)

OUTLOOK® SHORTCUT KEYS

Alt + S	Send the email
Ctrl + C	Copy selected text
Ctrl + X	Cut selected text
Ctrl + P	Open print dialog box
Ctrl + K	Complete name/email typed in address bar
Ctrl + B	Bold highlighted selection
Ctrl + I	Italicize highlighted selection
Ctrl + U	Underline highlighted selection
Ctrl + R	Reply to an email
Ctrl + F	Forward an email
Ctrl + N	Create a new email
Ctrl + Shift + A	Create a new appointment to your calendar
Ctrl + Shift + O	Open the outbox
Ctrl + Shift + I	Open the inbox
Ctrl + Shift + K	Add a new task
Ctrl + Shift + C	Create a new contact
Ctrl + Shift + J	Create a new journal entry

Computer Input and Output Devices

Input Device

Definition:

A piece of equipment/hardware which help us enter data into a computer is called an input device. For example keyboard, mouse, etc. Output Device Definition: A piece of equipment/hardware which gives out the result of the entered input, once it is processed (i.e. converts data from machine language to a human-understandable language), is called an output device. For example printer, monitor, etc.

List of Input Devices Given below is the list of the most common input devices along with brief information about each of them.

1. Keyboard

- A simple device comprising keys and each key denotes either an alphabet, number or number commands which can be given to a computer for various actions to be performed
- It has a modified version of typewriter keys
- The keyboard is an essential input device and computer and laptops both use keyboards to give commands to the computer

2. Mouse

- It is also known as a pointing device
- Using mouse we can directly click on the various icons present on the system and open up various files and programs
- A mouse comprises 3 buttons on the top and one trackball at the bottom which helps in selecting and moving the mouse around, respectively
- In case of laptops, the touchpad is given as a replacement of mouse which helps in the movement of the mouse pointer

3. Joy Stick

- It is a device which comprises a stick which is attached at an angle to the base, so that it can be moved and controlled
- Mostly used to control the movement in video games

- Apart from computer system, a joystick is also used in the cockpit of an aero plane, wheel chairs, cranes, trucks, etc. to operate them well

4. Light Pen

- It is wand-like looking device which can directly be moved over the device's screen
- It is light sensitive
- Used in conjunction with computer's cathode ray tube

5. Microphone

- Using a microphone, sound can be stored in a device in its digital form
- It converts sound into electrical signal
- To record or reproduce a sound created using a microphone, it needs to be connected with an amplifier

6. Scanner

- This device can scan images or text and convert it into a digital signal
- When we place any piece of document on a scanner, it converts it into a digital signal and displays it on the computer screen

7. Barcode Reader

- It is a kind of an optical scanner
- It can read bar codes
- A source of light is passed through a bard code, and its aspects and details are displayed on the screen

List of Output

Devices The commonly used output devices have been listed below with a brief summary of h=what their function is and how they can be used.

Monitor

- The device which displays all the icons, text, images, etc. over a screen is called the Monitor
- When we ask the computer to perform an action, the result of that action is displayed on the monitor
- Various types of monitors have also been developed over the years

Printer

- A device which makes a copy of the pictorial or textual content, usually over a paper is called a printer
- For example, an author types the entire book on his/her computer and later gets a print out of it which is in the form of paper and is later published
- Multiple types of printers are also available in the market, which can serve different purposes

Speakers

- A device through which we can listen to a sound as an outcome of what we command a computer to do is called a speaker
- Speakers are attached with a computer system and also are an hardware device which can be attached separately
- With advancement in technology, speakers are now available which are wireless and can be connected using Bluetooth or other applications

Projector

- An optical device which presents an image or moving images onto a projection screen is called a projector
- Most commonly these projectors are used in auditoriums and movie theatres for display of the videos or lightening
- If a projector is connected to a computer, then the image/video displayed on the screen is the same as the one displayed on the computer screen

Headphones

- They perform the same function as a speaker, the only difference is the frequency of sound
- Using speakers, the sound can be heard over a larger area and using headphones, the sound is only audible to the person using them
- Also known as earphones or headset

A to Z Keyboard Shortcuts

Key	Shortcut	Function
A	Ctrl + A	Select all items
B	Ctrl + B	Bold text
C	Ctrl + C	Copy selected text or item
D	Ctrl + D	Delete item (move to Recycle Bin) / Duplicate in some apps
E	Ctrl + E	Search in File Explorer, browser, or document
F	Ctrl + F	Find text in a document or webpage
G	Ctrl + G	Go to a specific page, line, or location in documents
H	Ctrl + H	Replace text (Find & Replace)
I	Ctrl + I	Italicize text
J	Ctrl + J	Open downloads in web browsers
K	Ctrl + K	Insert a hyperlink
L	Ctrl + L	Select the address bar in browsers
M	Ctrl + M	Indent paragraph (Microsoft Word)
N	Ctrl + N	Open a new document, tab, or window
O	Ctrl + O	Open a file
P	Ctrl + P	Print document
Q	Ctrl + Q	Quit application (some apps) or Remove paragraph formatting
R	Ctrl + R	Refresh the page (web browsers) or Align right in Word
S	Ctrl + S	Save document
T	Ctrl + T	Open a new tab in browsers
U	Ctrl + U	Underline text
V	Ctrl + V	Paste copied content
W	Ctrl + W	Close the current window or tab
X	Ctrl + X	Cut selected text or item
Y	Ctrl + Y	Redo the last undone action
Z	Ctrl + Z	Undo the last action