

Flash Drive

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What is a Flash Drive?

A flash drive is also known as pen drive and USB drive is a small electronic tool containing flash memory that is used for storing data or transferring it to or from a computer, digital camera. Such as, it can store important files and data backups, carry favorite settings or applications.

Background / History

Flash drives were invented at M-Systems, an Israeli company, in a US patent filed on April 5, 1999, by Amir Ban, Dov Moran, and Oron Ogdan. The product was not announced until September 2000 and then sold its first copy in December 2000 (Pinola 2011, July 01). At first, it was only made to carry 8-megabytes worth of files. However, within 10 years the it increased to 260-gigabytes per drive. In 2017, there are flash drives that can hold 1-terabyte which is equivalent to 1000000-megabytes worth of files.

Why in this innovation important?

Imagine accidentally deleting all your work files and now you need them. What are you going to do? Well, if you saved those files into the drive then you are saved from the terror, if not then you can even get fired from your job. The most important perk that a flash drive gives you is the ability to save millions of documents. The best part about having a flash drive is that it can be the size of a key, and yet it is so helpful. You can easily put in your pocket or your keychain without having to worry about the consequences of your losing the files from your computer.

Components of a flash drive.

Since flash drive is a technological item, this will have many different parts that makes it possible to execute it's goal. As I mentioned on page 2, in this case the goal is to store files in case there is a need for transferring them.

2.1 Exterior components.

2.1.1 The cover and the cap.

2.1.2 USB connector.

2.1.1 The Cover and the Cap.

This is the “body” of the USB drive. It is the hard outer shell that protects the interior of the drive. It is also the part of the USB drive that can be customized and styled to give USB drives their

distinctive appearances (Figure 1). These generally are made of plastic but can be made out of other types of materials, such as metal.



Figure 1. *USB Flash Drive*,
by Tymchenko, Ilona.

2.1.2 USB connector.

The USB connector is the small, silver extension that extends from the main USB device. They tend to be flat and rectangular shape. The connector is what inserts into the USB port of the computer (Figure 2). Because this part of the USB flash drive is easily damaged, newer USB flash drives come with a switch that pulls the connector out.

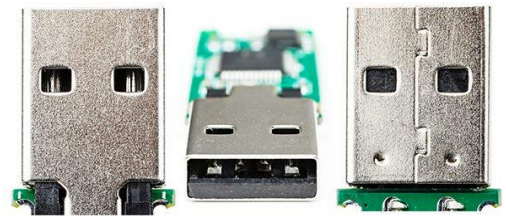


Figure 2. *USB*
by

Flash Drive,

Tymchenko, Ilona.

2.2 Interior components.

2.2.1 USB mass storage controller.

2.2.2 Nand flash memory chips.

2.2.3 LEDs

2.2.4 Crystal Oscillator

2.2.1 USB mass storage controller.

This is the main component of your USB that makes your device accessible to a computer, enabling file transfers between the computer and USB (Lysis, 2015). It is essentially a middleman facilitating the data transfer. It contains a small amount of on-chip ROM and RAM. Both ROM and RAM chips deal with data storage, ROM is non-volatile storage while RAM is volatile storage.



Figure 3. *Inside a flash drive.*(2011)

2.2.2 NAND flash memory chips.

NAND flash memory is another form of non-volatile data storage (Figure 4). According to USB Flash Drives: Components, Uses, and Myths Dispelled, 2014, “The NAND chip in USB drives is the backbone of the device, giving it the power and storage space it needs to hold onto your information.” Without it the storing of files would not be possible.



Figure 4. *Inside a flash drive.*(2011)

2.2.3 LEDs

In the simplest terms, a light-emitting diode (LED) is a semiconductor device that produce light when an electric current is passed through it (Figure 5). Most USB come with LED indicator lights. These are handy for quickly seeing if your drive is in use or being charged. This component is great because it can indicate if your device is working or not.

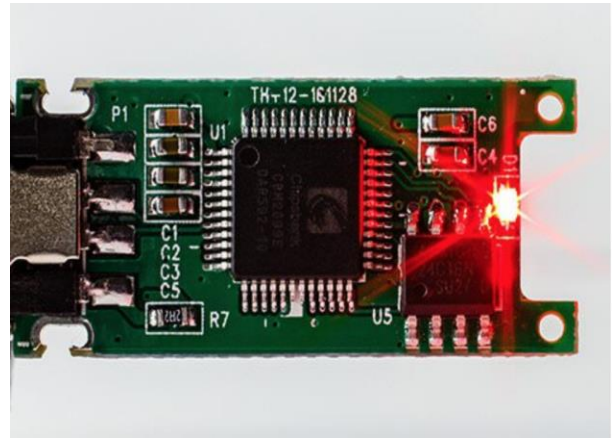


Figure 5. *Inside a flash*

drive.(2011)

2.2.4 Crystal Oscillator

This is where your USB drive controls the flow of information within the USB drive (Figure 6).

Crystal Oscillator Circuit and Working states, “It uses a 12 MHz clock signal to control the device’s output. All electronic devices use a clock signal.”

The signal functions in a manner similar to a pendulum, swinging from one end to the other. This signal helps coordinates the actions of all the

electronics on the USB drive (Pinola, M. 2011, July 01)

Quartz Crystal Oscillator

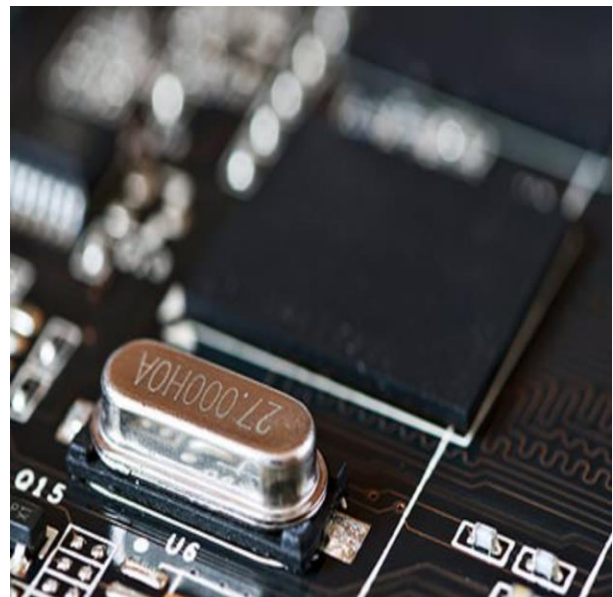


Figure 6.

and Quartz Crystals. (2016)

3. How to use a USB drive?

Step 1- Insert the flash drive into a USB port on your computer. Your USB port should be on the front, back, or side of your computer. Note that the location might differ depending on whether you have a desktop or a laptop.

Step 2- After you have executed step 1, a dialog box will appear (Figure 7). If it does, select

Open folder to view files.

From here on you should

be able to see all your files

inside the USB.

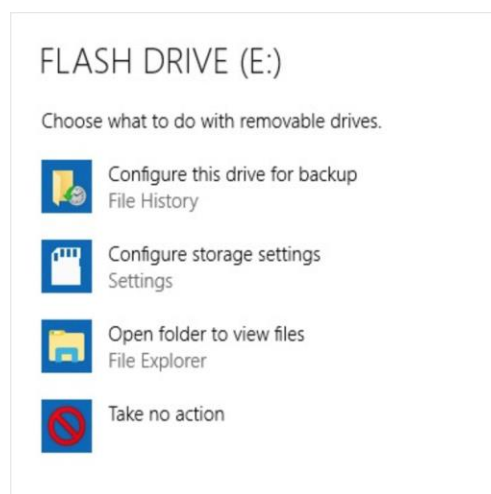


Figure 7. Pinola, M. (2011, July 01)

Copying files to computer- To copy a file from your flash drive in to your computer, simply right click on the file you want to copy, then select copy. After you selected copy, select a folder you want to keep the files in, then right click again and click paste. If you successfully done all the steps, your files should be copied into your computer.

Copying files to USB drive- To copy the file in to your flash drive, you do as you would to copy from your drive. Except to paste the file, you select the drive as your folder.

4. Conclusion

When you look back at all the great inventions of our time, USB drive is definitely up there. It is among the most innovative technology of all time because it changed the way files can be saved and transferred so easily. Just like everything with time it evolved, especially on design, space and it's accessibility. It is crazy when you think something that is the size of your finger can hold millions of documents. If it wasn't for Amir Ban, Dov Moran, and Oron Ogdan we would not be able to transfer files from computer to computer within seconds. There is another alternative to transfer files, such as through Bluetooth and emails, but it will consume a lot of your time through the process.

References

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