The real difference between SD Card and SSD card

Since both SD and SSD cards use solid memory and no loose components, what are the differences between them? Or the big SD storage card is just like a small SSD card?

Solid-state hard drives have made great strides in the ability to open applications and read files quickly. Its operating mechanism is similar to the commonly used flash drives, called static electrical memory, which prevents data loss due to power outages like the way RAM does. Since both SD and SSD cards use solid memory and no loose components, what are the differences between them? Or the big SD storage card is just like a small SSD card?

Not all NANDs are the same

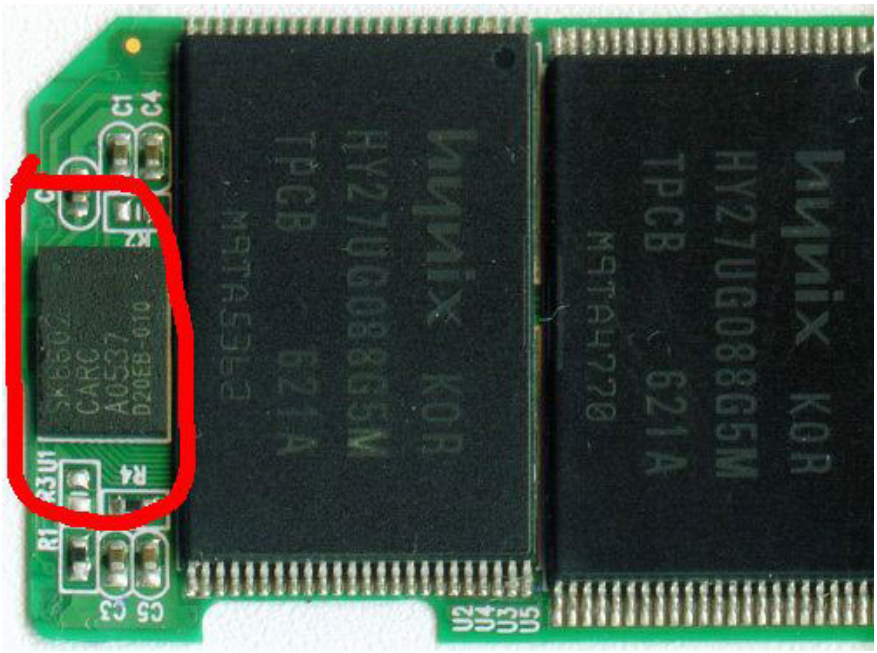
NAND flash memory depends on the hardware on the device or embedded in the chip. NAND elements are basically a semiconductor string that stores data. The speed of reading and writing information is almost entirely dependent on how they are arranged and how the control device is responsible for selecting and sending data to coordinate the process.

In theory, SD cards can read and write as fast as SSDs. Most of the time, an average card can't handle that fast. Size limits do not give manufacturers much space to create an environment for huge amounts of data to move.

Nor is there not a lot of NAND flash memory, each has its own advantages and disadvantages. However, theoretically, you can get NAND from SSD (eg 3D TLC NAND on Samsung SSD 850 EVO) to SD card. Because to work, the SD card only needs to communicate with the devices it reads.

The difference between SD and SSD

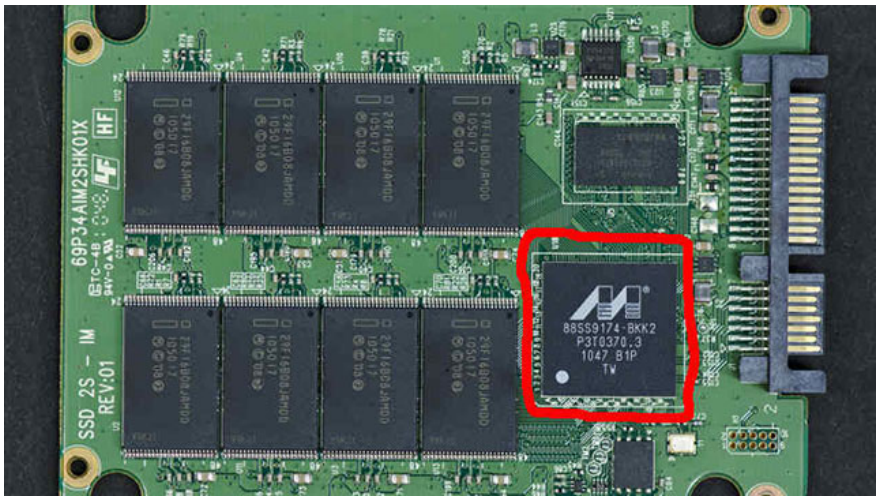
Since the SD card has very little space, the microcontroller takes the data and writes it on it, which is usually inserted into the edge of the card as shown in the image below.



The microcontroller is located on the edge of the memory card

There are many instructions programmed inside such small microcontrollers, and with such a small size, the way SD cards handle data is quite rudimentary. It tends to store data anywhere and read it in the easiest order possible.

SSD cards are not so when they can put memory and the entire structure into a space that fits snugly on the computer's drive bay. Here is the picture.



Space of device processing on SSD card

The structure of the SSD is built to ensure that no element is used more than other elements, keeping the job with every file balanced. This is what you expect from a drive to read / write a lot.

Large space allows manufacturers to put buffer data storage chips, which are important when managing heavy and repetitive tasks. There is no wasted time and everything is very smooth.

In addition, the large size also consumes more heat, creating microcontrollers that need more power, which is impossible in SD format (because it needs more power than small devices can provide. and more heat emission.

Conclude

Each type is designed to work on different environments. SD is best when used to store and playback files while SSD is optimized to run the computer operating system defragmentation and what the task requires. One side has a simple role while the other needs to be smarter, more adaptable. It's not just about speed, it's about flexibility and workflow.