USB 3.0: good technology, but still waiting

The following article will provide readers with a reason why USB 3.0, also known as SuperSpeed ??USB, with a transfer rate of 5 Gbps, has not become an interface of choice since its introduction in 2008. .

USB 3.0 allows data transfer five times faster than USB 2.0, so why hasn't it been popular yet?

Over the past few years, **Universal Serial Bus** (USB) has become a popular interface. Since 1995, when USB 1.0 can only transmit 12 Mbps (megabits per second), this standard has begun to be accepted. But by 2000, when USB 2.0 delivered transfer speeds of up to 480 Mbps, traditional interfaces, including PS / 2, serial (serial), parallel, and even FireWire, became " *flat* ". So, why USB 3.0, also known as **SuperSpeed ??USB** , with a transfer rate of 5 Gbps, has not become the interface of choice since its introduction in 2008? There are several reasons below.

Why do you want USB 3.0

You simply want / need speed. It is even faster than **eSATA** (External Serial Advanced Technology Attachment). I tried to compare USB 3.0 with eSATA and found that, in fact, not quite as fast as the technical specifications: in reading speed, USB drive averaged 90 MBps, and eSATA drive reached 75 MBps. ; With write speed, the eSATA drive still handles 75 MBps while the USB drive drops to 62 MBps.

USB 3.0, like previous USB standards, has the advantage of being able to supply power to connected devices. An eSATA device requires a separate power supply.

The USB 3.0 standard also has the advantage of using an interrupt instead of polling when a device is plugged in. With polling mode connection, when a USB device is plugged into the port, the computer still has to check what device it needs. With laptops, this is a disadvantage because of power consumption, which can cause the battery to run out quickly. By using an interrupt mechanism, USB 3.0 doesn't waste time or energy on an idle device, so it saves more battery power. Moreover, the voltage is supplied via USB 3.0 port, when the device needs to operate, not only enough for USB flash memory but also enough for external drives.

In addition, even if your computer doesn't have a USB 3.0 port, you can buy and add a Peripheral Component Interconnect (PCI) card that integrates two USB 3.0 ports for about $ 25 (520,000 dong). There are already many USB 3.0 compatible external hard drives from vendors such as Seagate, Western Digital, Buffalo Technologies.

With the advantages and availability of the device, you should assume that USB 3.0 must become popular.

But not really. There are still very few computers, even from big companies like HP, Sony, and Dell, with built-in USB 3.0 communication ports.

Why is USB 3.0 not up to date?

USB 1.0 and 2.0 ports and devices are interchangeable. Of course, any such combination would reduce the transfer rate to only 12 Mbps of the USB 1.0 standard. But with USB 3.0, although plugging in devices and connecting computers as usual, it's not really compatible with older standards.

Instead of using four wires like before, USB 3.0 cables have eight wires. One power supply, one ground wire, two wires for USB 2.0 data, and the other four wires for SuperSpeed ??data. If you notice the USB 3.0 cable more carefully, you will see a plug that is green. It is the side that plugs into USB 3.0 devices such as scanners, printers, cameras, external hard drives . However, this head is not compatible with USB 2.0 devices. So while you can plug a USB 2.0 device with a USB 2.0 cable into a USB 3.0 port (on a PC) or a USB 3.0 device with a USB 3.0 cable on a USB 2.0 port (on a PC), you I can't use a USB 3.0 cable to connect to a USB 2.0 device.

Currently, there is no option to convert the USB 3.0 cable into USB 2.0 standard, but it is easy to connect with USB 2.0 cable with USB 3.0 cable. This is small but quite troublesome.

But the most important thing is that Windows 7, even with SP1, has not yet defaulted on USB 3.0 support. You can use USB 3.0 ports and devices with standard device drivers, but in 2011, Windows users still have device driver compatibility concerns. So are Mac users, because even Snow Leopard does not yet support USB 3.0. Ironically, Linux has always been attributed to the lack of device support, the only operating system ready to support USB 3.0.

And although Intel is a member of the USB development team, it helped to make specifications for the USB 3.0 standard, but it has only been recently taken for its product specific actions. At Computex, held in Taiwan on May 31, 2011, Intel finally pledged to support USB 3.0 on a practical product line. Intel will ship "new" USB devices on their Ivy Bridge chips.

Even so, don't be too excited about this. Ivy Bridge processors, next to Sandy Bridge, until after March 2012 appear on the market. From now on, if you want a USB 3.0 motherboard already built in, go to AMD. The company announced that Fusion A75 and A70M chipsets will support USB 3.0. These chipsets are being

shipped.

Why is Intel so slow? That's because the chip giant is focusing on promoting its own high-speed communication: **Thunderbolt** , formerly known as **Light Peak** , first introduced by Intel at the Intel Development Forum (IDF) in January. 9/2009.

Thunderbolt uses the same size connector as USB but thinner wires. Thunderbolt can transmit data up to 50 meters, while USB 3.0 only ensures transmission with Gbps speed within a distance of 2-3 meters.

Thunderbolt can also be used with PCI Express and DisplayPort communication. Therefore, it can be used for both devices and for high definition video (HD) display. Intel also promises that power will be supplied via wires to devices.

Furthermore, tests show that Thunderbolt's duplex transfer rate can be up to 10 Gbps, double that of USB 3.0. Thunderbolt will also be supported by Ivy Bridge processors.

However, unlike USB 3.0, which is the industry standard, Thunderbolt is Intel's own standard. So, Thunderbolt sounds no better than USB 3.0, you will only be able to use it with Intel devices and hardware manufactured by vendors under Intel's license. History shows that exclusive import / export standards are difficult to popularize in the mass market. For example, Apple's FireWire brand with IEEE 1394 high-speed communication standard cannot take off even though the transmission speed is faster than that of its competitors.

Although USB 3.0 has not taken off as quickly as expected, in the long run it will win and become a versatile I / O system for computers. Although Apple, Intel, and Microsoft are not yet actively supporting, it is still the fastest and most flexible open I / O system. That would probably be an obstacle for Intel's Thunderbolt to become popular.