USB 3.0 - IT'S ABOUT TIME!

It's been almost a decade since **USB 2.0**, also known as Hi-Speed USB, came into our lives, providing a low-cost, high-bandwidth, and hot-pluggable interface that has become the standard for just about every device you can imagine. It's made using inexpensive components, gives a high-bandwidth connection while providing adequate power and can support up to 127 devices at once.

"…This can provide faster charging times for your mobile devices."

In geek time, a decade may as well be a century, technology has advanced tremendously in that span of time. Files and media libraries have increased in size, high-definition video has become a mainstream standard, and **cheap cell phones** have basically become miniature computers; not to mention the wide array of **storage devices** that have emerged to keep backups of the data on all those devices. **The need for higher bandwidth is an ever-growing one for all these things, and the USB Implementers Forum has come to our rescue yet again**. Finalizing the USB 3.0 specification in November of 2008, they've given the green light to hardware manufacturers to begin rolling out the gadgets. Now that we are starting to see products using this new technology come to market, it's time to get familiar with the technology itself.

What's New?

The biggest feature of USB 3.0, also known as **SuperSpeed USB**, is undoubtedly its higher bandwidth. The new specification has a signal rate of 5 Gigabits per second (Gbps). Compare that to the previous 2.0 specification, which was 480 Megabits per second

(Mbps), and you're looking at a potential tenfold increase in performance. In Megabytes (MB), that's a jump from 60 per second to 625 per second! This means faster sync times for your mobile multimedia devices, **flash drives**, and other data-related peripherals. Another beneficial feature is optimized power efficiency. The previous specification allowed for up to five 100 mA unit loads, for a total of 500 mA, but the unit load values and totals have been increased to six unit loads of up 150 mA each. **This can provide faster charging times for your mobile devices like portable DVD players.**

Is It Compatible With What I Have?

If you're worried about replacing all your old devices, fear not; **SuperSpeed USB** will be backwards compatible with USB 2.0 devices. New **USB 3.0** hosts will recognize USB 2.0 devices and new 3.0 devices will still connect to 2.0 controllers. The old connectors and **cables** were wired using four wires, one for power, one for ground, and two in a twisted pair for data transfers. The new specification builds off this design, using the standard power, ground, and two data wires, but add four more wires for SuperSpeed data. To accommodate the extra pins for this, USB 3.0 standard A connectors and ports will be longer and deeper than their predecessors, preventing older devices from ever coming into contact with the new pins. SuperSpeed standard B connectors will be built on top of the existing form factor. The only drawback is, while SuperSpeed standard A plugs will fit into USB 2.0 standard A ports, SuperSpeed standard B plugs will not fit into Hi-Speed standard B ports. For that, a new cable must be used to connect a SuperSpeed device to your existing USB 2.0 port, but cannot be used to connect old

devices to your new 3.0 port. For the most part, you should be able to recognize USB 3.0/SuperSpeed ports and cables because they are color-coded blue.

When Can I Get It?

The best part of all these exciting new features is that they are available right now! Chip makers have already released chips to motherboard and add-on card manufacturers, so you can buy a new motherboard with USB 3.0 already integrated or install an add-on card to an available PCI Express x4 slot for desktop systems or ExpressCard 2.0 slot for notebooks. A PCI Express x4 slot must be used because a x1 slot would limit the effective bandwidth to 250 Megabytes per second or about 2 Gigabits per second. The same is true for ExpressCard slots that are not ExpressCard 2.0 compliant. **External hard drives**, case enclosures, and **notebook computers** are already available using the technology, and with many more on the way, it's only a matter of time before you're spending less of it watching progress bars as you sync and charge.

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