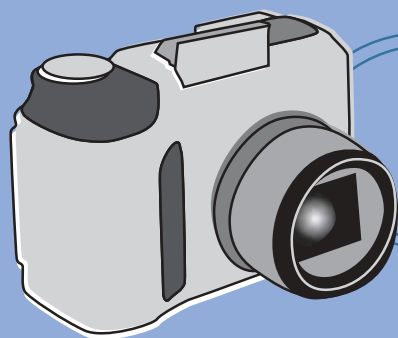


Quick connections



The latest USB version provides the speediest data transfer between devices and your PC, but new labels for the 1.1 and 2.0 standards have caused bewilderment for many a buyer and retailer. Simon Easterman clears up the confusion

Here at *PC Advisor* we like to think we provide, as our magazine's strapline declares, expert advice in plain English. Month in, month out, we try to bridge the gap between the technical wizards that create your beloved machines and the rest of us who lack the relevant PhDs in techie-speak.

This task isn't made any easier when manufacturers decide to pull the linguistic rug out from under all our feet, leaving us tap-dancing on shifting sands without a leg to stand on.

If this mixture of metaphors leaves you a bit nonplussed, that's nothing compared to the confusion caused to consumers and manufacturers alike by the USB IF's (Implementation Forum's) recent decision to rename, then rename again, its different data-transfer standards. Good job we're here to set the record straight.

A very good place to start

Perhaps things would be simpler if we went back to the beginning. The idea of a unified input/output connection was first conceived by a group of powerful industry players in the early 1990s. Intel, Microsoft, Compaq, NEC and Digital Equipment saw the value of a standard that would replace the confusing variety of I/O formats. These companies knew that together they had enough control over the industry to ensure it would be accepted.

Sure enough, by the time of its release as a standard in 1998, USB sockets were already present on many desktops and peripherals. Microsoft's inclusion of the necessary drivers in Windows 98

undoubtedly helped its adoption, along with the industry leverage of the group's members. By 2002, 400 million devices were shipped with USB, as opposed to 60 million with FireWire, according to research carried out by In-Stat/MDR for the USB IF.

Despite the distributional supremacy USB had over FireWire, the standard was still 30 times slower than its rival. This put USB at a disadvantage in terms of its suitability and competitiveness with regard to video cameras, external hard drives and high-speed scanners and printers.

To overcome this, the USB IF produced a faster standard, christened USB 2.0,

FireWire seemed a forgone conclusion. Manufacturers soon began to include this new standard in their computers and In-Stat predicts that by the end of this year all new PCs will include it.

This doesn't mean that the original USB version is becoming obsolete, however, as the new standard is entirely backwards-compatible. It uses the same style of socket, so you can plug a peripheral using 1.1 into a 2.0-enabled PC or a 2.0 peripheral into a 1.1 PC.

In both cases the peripheral will work – you'll just have to make do with the old speed of 12Mbps. You can only get

Anyone confronted by USB Full-Speed would assume it meant the fastest standard around. It's only when you put it alongside Hi-Speed that you realise this may not be the case

that was able to transfer data at a far more respectable 480Mbps (megabits per second). Although peripherals using the new go-faster flavour have only emerged on the market in the last few months, the industry was locked in to adopting USB 2.0 over a year and a half ago.

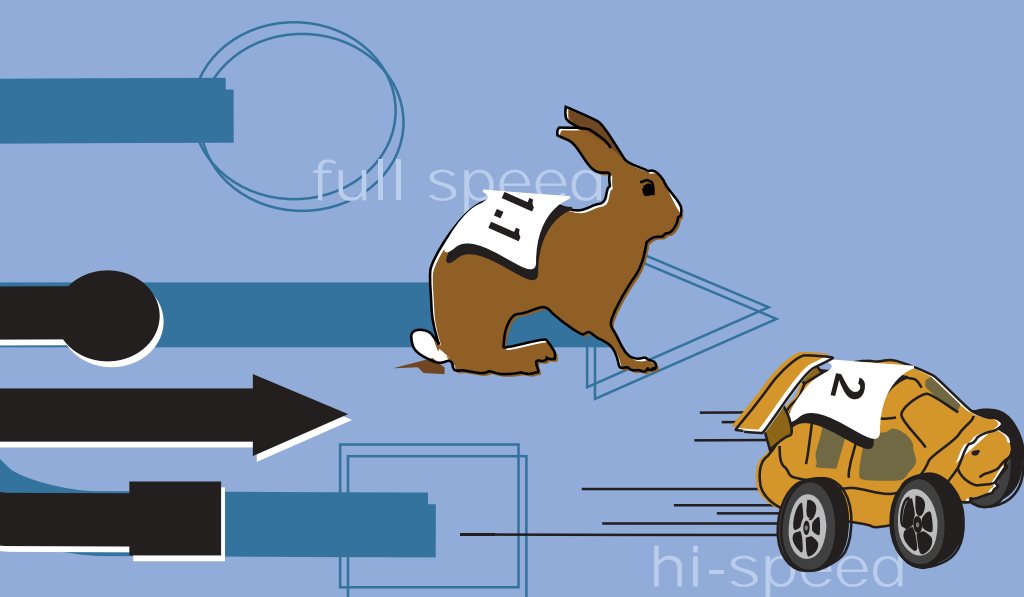
It's only a number

Many of the major players at the Comdex industry show in November 01 were showing off devices that used the USB 2.0 standard and the showdown with

480Mbps from a USB 2.0-enabled PC and a 2.0-enabled peripheral.

This all seems clear enough and has been common knowledge to anyone interested for a good while. Indeed, there are postings on the *PC Advisor* website discussing the two standards as far back as January last year.

It therefore seems deliberately awkward of the USB IF to change its naming system. At the end of last year, the forum suddenly decreed that the label 'USB 2.0' was to encompass both speeds. The



standards would now be differentiated by the labels 'USB Full-Speed' (1.1) and 'USB Hi-Speed' (2.0).

It's no surprise that this proved misleading as it goes against the conventional numerical system used across the industry to identify successive product upgrades. Imagine if Adobe decided that the name Photoshop 7.0 now meant Photoshop versions 4.0 to 7.0; the situation would be laughable.

As if this weren't enough, the new names the IF chose seem to mean the same thing. Anyone confronted by USB Full-Speed would assume it meant the fastest standard around. It's only when you put it alongside Hi-Speed that you realise this may not be the case, but still it's by no means certain which label would indicate the faster product.

The name game

It wasn't long before misunderstandings developed. We received an email from *PC Advisor* reader John Chapman who had purchased a Canon Lide scanner that proudly claimed on the box to have a USB 2.0 Full-Speed interface.

John wasn't the only one to assume this meant his new scanner would be transferring data at the optimal rate – the salesman was taken in as well, saying it was a faster standard.

At first the scanner seemed no faster than one with an 'old' USB connection, but then John soon realised to get top speeds he also required a USB 2.0 (Hi-Speed) PCI card. This he bought and installed, but found that his scanning was no faster. When he contacted Canon to complain, he was rather shortly appraised of the situation regarding the renaming of the standard and told his scanning speeds would remain the same.

John wasn't the only one to fall foul in this naming game, it seems. Canon's technical co-ordinator, Nick Pankhurst, confirmed the company had noticed a lot of confusion because of the renaming. However his colleague, Ashley Ollett, denied that Canon was trying to cash in on customers' bewilderment, claiming that it was simply following the USB IF's naming directives.

And other manufacturers were involved in the chaos of misinterpretation. Salesmen at the West End branch of Micro Anvika said the store had received laptops from both Sony and Toshiba that had been labelled USB 2.0 and actually only supported the original USB standard.

We were unable to talk to Jeff Ravencraft, head of the USB IF marketing committee and marketing manager for Intel's USB initiative, due to illness. However, we asked Mark Atkinson, Intel's UK technical marketing manager, about the name changes. He professed to being unaware that the label '2.0' had ever applied to anything other than the fastest USB version.

When asked whether he thought 'Full-Speed' and 'Hi-Speed' provided a clear distinction he refused to comment, saying, "If there's confusion then feedback needs to go back to the USB IF."

To deal with these problems, the USB IF has tried to clear things up with some naming and packaging recommendations on its website.

The 750-word published document aims to ensure "clear, consistent messaging on packaging", because "inconsistent use of terminology, in combination with the existing general misconception that USB 2.0 is synonymous with Hi-Speed USB, creates confusion in the marketplace".

Connection speeds

| Peripherals | Speed (Mbps*) |
|-------------------|---------------|
| USB Hi-Speed | 480 |
| FireWire | 400 |
| Ultra2 SCSI | 320 |
| USB Full-Speed | 12 |
| Bluetooth | 1 |
| Networks | Speed (Mbps*) |
| Wi-Fi (802.11a) | 432 |
| Fast ethernet | 100 |
| Wi-Fi (802.11b) | 11 |
| Standard ethernet | 10 |
| Bluetooth | 1 |

*Megabits per second – a data transfer rate of a million bits of data each second

Light through the fog

Whatever the roots of this confusion, the guidelines settle the matter by stating in bold print: "The correct nomenclature for high-speed USB products is 'Hi-Speed USB'. The correct nomenclature for low- or full-speed USB products is simply 'USB'".

These two clear labels are represented by logos that the IF requires to be displayed on packaging and a quick look round some computer shops shows they are now in use by most manufacturers. However, makers are asked to avoid labels such as 'USB 2.0 full-speed'.

So it appears the fog is lifting. While Full-Speed and 1.1 are both still used side by side on the USB IF's website, at least in the shops and on device packaging it should be obvious what manufacturers and consumers are talking about and, crucially, what they are paying good money for. ■