What Is USB?

USB Short for **Universal Serial Bus**, an external bus standard that supports data transfer rates of 12 Mbps.

Today just about every PC comes with Universal Serial Bus, or USB ports. In fact, many computers will even have additional USB ports located on the front of the tower, in additional to two standard USB ports at the back. In the late 1990s, a few computer manufacturers started including USB support in their new systems, but today USB has become a standard connection port for many devices such as keyboards, mice, joysticks and digital cameras to name but a few USB-enabled devices.

USB is able to support and is supported by a large range of products. Adding to the appeal of USB is that it is supported at the operating system level, and compared to alternative ports such as parallel or serial ports, USB is very user-friendly. When USB first started appearing in the marketplace, it was (and still is) referred to as a plug-and-play port because of its ease of use. Consumers without a lot of technical or hardware knowledge were able to easily connect USB devices to their computer. You no longer needed to turn the computer off to install the devices either. You simply plug them in and go. USB devices can also be used across multiple platforms. USB works on Windows and Mac, plus can be used with other operating systems, such as Linux, for example, with a reliable degree of success.

Before USB, connecting devices to your system was often a hassle. Modems and digital cameras were connected via the serial

port which was quite slow, as only 1 bit is transmitted at a time through a serial port. While printers generally required a parallel printer port, which is able to

receive more than one bit at a time — that is, it receives several bits in parallel. Most systems provided two serial ports and a parallel printer port. If you had several devices, unhooking one device and setting up the software and drivers to use another device could often be problematic for the user.

The introduction of USB ended many of the headaches associated with needing to use serial ports and parallel printer ports. USB offered

consumers the option to connect up to 127 devices, either directly or through the use of a USB hub. It was much faster since USB supports data transfer rates of 12 Mbps for disk drives and other high-speed throughput and 1.5Mbps for devices that need less bandwidth.

Additionally, consumers can literally plug almost any USB device into their computer, and Windows will detect it and automatically set-up the hardware settings for the device. Once that device has been installed you can remove it from your system and the next time you plug it in,

Windows will automatically detect it.

Types of USB

USB 1x

First released in 1996, the original USB 1.0 standard offered data rates of 1.5 Mbps. The USB 1.1 standard followed with two data

rates: 12 Mbps for devices such as disk drives that need high-speed throughput and 1.5 Mbps for devices such as joysticks that need much less bandwidth.

USB 2x

In 2002 a newer specification USB 2.0, also called Hi-Speed USB 2.0,was introduced. It increased the data transfer rate for PC to USB device to 480 Mbps, which is 40 times faster than the USB 1.1 specification. With the increased bandwidth, high throughput peripherals such as digital cameras, CD burners and video equipment could now be connected with USB. It also allowed for multiple high-speed devices to run

simultaneously. Another important feature of USB 2.0 is that it supports Windows XP through Windows update.

USB OTG

Short for USB On-The-Go, an extension of the USB 2.0 specification for connecting peripheral devices to each other. USB OTG products can communicate with each other without the need to be connected to a PC.

USB OTG addresses the need for devices to communicate directly for mobile connectivity. USB OTG allows consumers to connect mobile devices without a PC. For example, USB OTG lets consumers plug their digital camera directly into a compliant printer and print directly from thecamera, removing the need to go through the computer. Similarly, a PDA keyboard with a USB OTG interface can communicate with any brand PDA that has a USB OTG interface.

USB-OTG also provides limited host capability to communicate with selected other USB peripherals, a small USB connector to fit the mobile form factor and low power features to preserve battery life. USB OTG is a supplement to the USB 2.0 specification.

Types of USB Connectors

Currently, there are four types of USB connectors: Type A, Type B, mini- A and mini-B and are supported by the different USB specifications

(USB 1, USB 2 and USB-OTG).

USB A (Host) Often referred to as the downstream connector, the Type A USB

connector is rectangular in shape and is the one you use to plug into the CPU or USB hub.

USB B (Device) Also called the upstream connector, the Type B USB connector is more box-shaped and is the end that attaches directly to the device (such as a printer or digital camera).

USB 1.1 specifies the Type A and Type B.

Mini-B

The USB 2.0 connector was too large for many of the new handheld devices, such as PDAs and cell phones. The mini-B was introduced to enable consumers to take advantage of USB PC connectivity for these smaller devices.

USB 2.0 specifies the Type A, Type B and mini-B.

Mini-A

With the need to connect mobile devices without the aid of a computer, the mini-A port was designed to connect the new generation of smallermobile devices.

4

USB OTG specifies the mini-A.

Certified Wireless USB

With an estimated 2 billion plus USB connected devices in the world and a growing interest in wireless computing, it's no surprise that development has turned to wireless USB. The USB Implementers Forum has introduced Certified Wireless USB the newest extension to the USB technology. Wireless USB applies wireless technology to existing USB standards to enable wireless consumers to still use USB devices without the mess of wires and worry of cords. Still in its infancy, the Wireless USB specifications were made available to the public only in May 2005.

Notice . . . !!!

USB is capable of so much more than data transfer. Join us as we look at some of the new gadgets that are taking advantage of this fact

Most of us have a printer, digital camera or MP3 player that we connect to our computers using one of the little USB sockets situated at the front and back of the machine.

You don't have to stop there, though. Those shiny USB cables can carry any kind of data, including radio or television signals. They can also carry a small electrical charge - enough to power a variety of gadgets that might normally require batteries or their own power supply.

This opens up all sorts of interesting possibilities for new products - and,needless to say, the computer industry has leapt at the opportunity to design a motley assortment of weird and wonderful USB widgets for you to spend your money on.

After printers, the most common USB devices are probably storagedevices of various types. These flash memory devices are light and compact, but they tend to have limited capacity. If you need extra storage for your ever-increasing collection of digital music or video clips, then you might instead want to look at some of the USB hard disks that are available.

External USB-connecting hard disks are not unusual but many are big and bulky and require their own power supply. That means more cables and an ugly great power supply unit cluttering up your office. It also means the drives aren't very portable.

Did You Know...

*Vangie 'Aurora' Beal

Writer, www.Webopedia.com Last updated: August 12, 2005

Links:

USB Info:

Frequently Asked Questions http://www.usb.org/about/faq/ans5

Commonly asked questions about USB Cables, Connectors, and Networking with USB.

USB Implementers Forum http://www.usb.org/

USB Implementers Forum, Inc. is a non-profit corporation founded by the group of companies that developed the Universal Serial Bus specification.

The USB-IF was formed to provide a support organization and forum for the advancement and adoption of Universal Serial Bus technology.

Unusual uses for USB - Personal Computer World

http://www.pcw.co.uk/computeractive/features/2014033/unusual-uses-usb

USB is capable of so much more than data transfer. This article takes alook at some of the new gadgets that are taking advantage of this fact.

USB 2.0 - Hi-Speed USB - FAQ

http://www.everythingusb.com/usb2/faq.htm

This USB 2.0 FAQ is your first stop for general USB information and those questions that seem to be on most people's minds. You are also welcome to contribute your own answers to this wealth of information.

USB was introduced in 1997 but the technology didn't catch on until the introduction of the Apple iMac in 1998 —ironic because USB was developed by several PC-focused companies, including Compaq, DEC,IBM, Intel and Microsoft ?!!!