We make the input devices that control the OEM products that operate the world.

The Universal Serial Bus
WHITE PAPER

HALT + HASS
LASER-MARKING
SEALING
BACKLIGHTING
USB

Universal Serial Bus
Making User Interface Faster and Easier
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Imagine adding as many peripheral devices as you want to a PC—all with one common connector—without regard to placement. Imagine plugging-in full-motion video to your host. Imagine swapping peripheral devices at will without having to reboot the system.

These are the major benefits of the Universal Serial Bus.

The Universal Serial Bus, or USB, is a PC industry standard way of simplifying user interface of peripheral devices to a host PC. Today, peripherals are connected to one of many ports on the back of a PC. Keyboards are connected to keyboard ports, mice to mouse ports, monitors and printers to serial or parallel ports, speakers and microphones to separate jacks, and so on. This is confusing to users because of the wiring and cabling complexity. USB replaces all of these types of connections with one, universal port style. This means that the same type of connection can be used for all peripheral devices, including the mouse, monitor, keyboard, speakers, etc.

In addition, a USB expands a system's capability by allowing the host to communicate with multiple peripherals. In the old days, if a user wanted to have two different serial devices or two different parallel devices hooked to his PC, he had to have an A/B switch box that allowed him to manually change devices. This was very cumbersome. The USB supports multiple peripherals tied to a hub. No manual switching is required.

Identifying and assigning an address to peripherals is accomplished through a process called enumeration. Enumeration identifies each device and assigns it a unique address for communication with the host.
By enumerating, the USB ensures that the origin of incoming information is linked to the correct peripheral device, and that outgoing information gets back to the proper place. Because the enumeration process is continuous, the USB also allows the user to add or remove devices without powering down the system; the process is called “hot swapping.” Further, with a 12 Megabit/second (Mb/s) pipe, the USB has no difficulty supporting medium bandwidth peripheral devices, including audio class devices like speakers or microphones. With USB version 2.0 out since April, 2000, the bandwidth is upgraded to 480 Mb/s, enabling the USB to handle high speed data information transfer, which provides the user with more information faster.

Actively involved with USB since 1998—Esterline, Advanced Input Systems is now working on the development of multiple design solutions that will enable even the most complex control panels to use the USB. These solutions, or common building blocks, will give our customers the ability to add many types of peripherals to their user interface with little additional complexity in the design of the electrical system.

The Advanced Input Systems USB solutions include custom hardware designs which can be scaled in complexity. These designs integrate USB hubs and stand-alone USB devices to yield complete control to the user interface.

High-tech innovation and flexibility from Advanced Input Systems allows you to offer cutting-edge benefits to the end user—and that’s what you’d expect from the leader in custom input integration.

We look forward to working with your next project and to help you understand the USB hardware/software solutions that are currently available.

For more information, call 1-800-444-5923 or visit www.advanced-input.com
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