

# BUILD OR BUY PC NEWS

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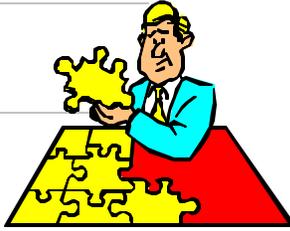
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GROWING PAINS— A NEW  
PIECE IN THE PUZZLE—

## USB: UNIVERSAL SERIAL BUS FOR PC'S



Now you and your PC can have an  
“Out Of Box” Experience!

A group of PC and telephone industry leaders have developed the Universal Serial Bus (USB) to accommodate the coming boom in computer telephone applications. Placed conveniently on a PC's outside shell, this new bus makes possible the addition of peripheral devices as easy as plugging in a table lamp. This will end port shortage and vastly simplify the job of adding peripheral devices

Digital audio and advanced telephony (ISDN) are pushing the PC's peripheral port capacity to the limit. Telephone-computer integration is a huge new opportunity that requires an interface to the PC that conventional ports just cannot provide. A new class of interconnection is required that provides a new mixture of lower cost, increased bandwidth and isochronous (time dependent) data handling. *Applications undreamed of a few years ago!*

### A STEP CLOSER TO PLUG-AND-PLAY INSTEAD OF PLUG-AND-PRAY

With this new bus, only one peripheral device (*the keyboard*) needs to plug directly into the PC. The other devices simply “daisy chain” together. One device simply connects to the other in a chain-like arrangement. Alternatively, devices can be connected star-like to a port expansion hub. The (USB) bus can accommodate up to 64 different devices, including the host PC. In addition, its tiered-star topology lets peripherals, called nodes, be connected up to 5 meters from each other or from the

expansion hub(s). No longer will users have to open the PC to plug in peripheral cards.

TODAY, EVERY PERIPHERAL  
DEVICE THAT CONNECTS TO A PC  
NEEDS ITS OWN PORT.

Ports are part of plug-in boards, which consume add-in slots, a limited resource. At best, well established peripheral ports may wind up on the motherboard. As a result, PCs can quickly run out of ports. Even when add-in slots are available, they require opening the case to fasten a new board into place. In some cases, for the board to operate correctly, switches must be set or jumper wires configured. These steps daunt the user and discourage adding new peripherals at all.

### A COMPLETE BUS SOLUTION—

The Universal Serial Bus features a 12-Mbit/sec. data rate, capacity enough for a full complement of low- and medium-speed devices. The bus even supplies +5-volt power to those devices with modest power needs, eliminating bulky AC power packs. The Universal Serial Bus detects whenever devices are added or removed, providing true plug-and-play operation. Typical devices that might connect to the USB include a telephone or telephone network, modem, printer, microphones, digital speakers, writing stylus and joystick control. Simplicity of USB serves the user and lower cost, the peripheral maker.

Intel plans to include Universal Serial Bus hardware in upcoming PC chip sets. Win95 provides a standard interface specification to integrate USB into the PC. By 1996, users should come to expect Universal Serial Bus as a standard feature. What's more, by opening the PC to many more peripheral devices than with today's approach, the USB should prompt peripheral makers to invent new products not yet considered for the PC.

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