

■ PC TUTOR

program works by swapping the port addresses located in the BIOS data area. This swapping may not work, however, if you use software print buffers that have been loaded before you swap the printers.

**DOWN WITH THE DIN**

I have been trying to find a way to turn down the volume on the speakers on our XT's. Although the beeps are useful when using software, they disturb people working around the computers.

Is there any way I can turn down the volume without disconnecting the speaker entirely?

Richard Watanabe  
Los Angeles, California

*The PC speaker is a simple affair. It's just driven by a simple digital square wave. There's no way in software to turn down the volume. You may notice that the speaker response is not linear—different frequencies have different volumes—so it might be possible to have a resident program intercept the BIOS interrupt 10h*

■ The PC speaker is a simple affair. There's no way in software to turn down the volume.

*"Teletype" routine (which is the only access to the speaker that the BIOS provides) and make the beep a different frequency that is not quite as loud. But many programs have their own beep routines, so this wouldn't be a universal solution.*

*In hardware, you could put a resistor in series with the speaker, but I'm not sure you'd like to attack the inside of your XT's with a soldering iron. [If you do know how to solder, the job is easy. You might start experimenting to find the right value resistor with a 10-ohm, 1/2-watt type, available at any Radio Shack. —Ed.]*

*Instead, I recommend a real low-tech solution. Take the covers off the machines, just stick something in front of the speaker, and put the covers back on. A few pieces of*

*corrugated cardboard should muffle the sound well enough.*

**THE EIGHTH SLOT**

The IBM PC-XT and the IBM Portable

Computer have a motherboard that includes eight slots. I have heard from a couple of people that the eighth slot (the one closest to the power supply) is a little "funny" and that it should not be used. It's the

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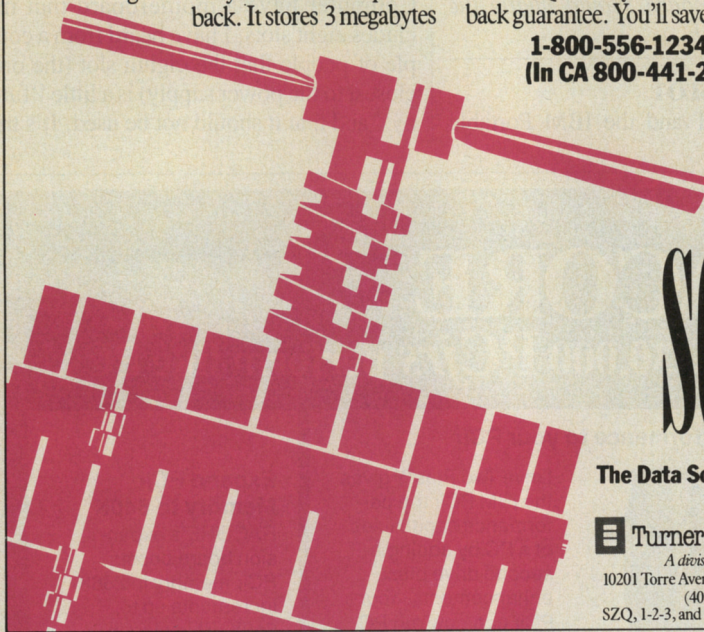


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## ■ PC TUTOR

shortest of my short slots, but I'm sure that my parallel printer board would fit there physically.

What's the story on the eighth slot?

Jerry Mahun  
Platteville, Wisconsin

According to IBM's Technical Reference manual for the XT, "Slot J8 is slightly different from the others in that any card placed in it is expected to respond with a 'card selected' signal whenever the card is selected." Elsewhere the manual indicates that "Timing requirements on slot J8 are much stricter than those on slots J1 through J7."

These two statements refer to signals that pass between the system board and the expansion board in slot 8. All of the address lines, data lines, and read and write signals for both memory and I/O are different from the signals on the other seven slots.

In other words, you heard right: slot 8 is a little "funny." Expansion boards that are not designed for slot 8 should not be used there. Specifically, the IBM Printer Adapter should not go in slot 8.

The IBM Asynchronous Adapter (otherwise known as a serial port) board has a

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jumper that allows the board to be used in slot 8. Many XTs are sold with the Asynchronous Adapter installed in that slot. I've seen some other boards (most recently the Video-7 VEGA and the Quadram QuadEGA) that also include a jumper if you want to put them in slot 8.

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