

BUGGY PCI BUS

This is when 1 out of 1e6 to 1e9 transfers on the pci bus (motherboard to pci cards) do not work properly. Pci requires that signals be placed on the bus, and the card must respond, and have the response received within 33ns. This is very little time. And several things on the bus can slow down the speed at which the electrical signals move down the bus. To give you a perspective of what 33ns means, note that light travels about 10meters in 33ns, and electricity travels slower than light. So the pci transfers do not do well when the electronics do not have time to do their thing. Adding capacitance to the pci signals makes it worse (i.e. more pci cards). Buggy pci is often seen when you run iNet World and it sometimes launches, yet sometimes hit errors. Or when iNet World can run for a little while, and then crashes. Here, the software in each trial is the same, yet the results are different. This implicates hardware. Hardware, where the failures are random. Like involving a gaussian noise distribution that is 5 to 8 standard deviations out. This gets worse when:

- * There are more pci cards in the computer.
- * The distance from the pci connector to the pci interface IC on each cards is more than 1 inch.
- * The distance from the pci connector to the pci bridge chip on the computer motherboard is too long (>4").

ALSO NOTE

- * This is affected by temperature, since temperature affects timing delays.
- * It seems that the newer computers with 100MHz motherboard (processor clock may be 300 to 500MHz) clock speeds have more trouble. Computers with 66MHz motherboard clock speeds seem to give less trouble with PCI. Ref smi, pIII, Newman.

If buggy pci is an issue, we recommend:

- * try fewer pci cards in your computer (this solves the problem in many cases)
- * try iNet-200 in another pci slot
- * try another i200 card
- * try another computer

ADDING DELAYS TO INSTRUNET PCI

We added a delay feature to the iNet dll that is in ver >= 1.32.2 at www.instrunet.com. This delay occurs after each pci transfer. To enable it, one creates a file with a text editor such as word pad, places: "delay pci 4" (without the quotes) in the top row, and saves the file with name "iNetLoad.ibs" in directory "c:\windows\system\" for Win 95/98/Me or "c:\windows\System32\" for Win Nt/2k/Xp. One could also try a delay of 8 by changing the 4 to an 8.

INTEL BX CHIPSET

The Intel BX chipset has a number of errata (problems) published by Intel. For details, please see. Intel suggests a Bios upgrade may (or may not) help if the BX chipset is causing erratic behavior on the pci bus.

Errata on BX chip set:

<http://developer.intel.com/design/chipsets/specupdt/29063905.pdf>

Errata on BX pci chip

<http://developer.intel.com/design/chipsets/specupdt/297738.htm>