

Re: IRQ assignment in Windows 2K/XP/2003...

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- *From:* "Paul L" <nospam@xxxxxxxxxxx>
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Why do you say that the motherboard has them or'd together? The Int A lines do not need to be bussed together. The mother board can route the Int lines from each slot anyway it wishes.

Paul

"Mark Roddy" <markr@xxxxxxxxxxxxxxxx> wrote in message [news:%23y\\$Xs5kOFHA.2356@xxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:%23y$Xs5kOFHA.2356@xxxxxxxxxxxxxxxxxxxxxxxxxxxx)

Cosmo wrote:

OS: Windows 2K/XP/2003
Hardware Platform: Intel x86-based PC, PIII, 815E chipset
Drivers: WDM-style

I have two independent, single-function PCI devices on the other side of a PCI-to-PCI bridge:

PCI slot <----> PCI-to-PCI bridge <----> PCI device #1
|
----> PCI device
#2

Both PCI devices request an interrupt and are physically attached to INTA on the PCI bus. A separate WDM device driver is written to control each of the PCI devices.

When the drivers load for each of the two devices, the system (PnP manager) dynamically assigns an IRQ # for each of the two devices. Sometimes the IRQ # is the same and sometimes the IRQ # is different. I can disable and re-enable each device via the Windows XP Device Manager and get the IRQ # assignments to change.

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Now, when the two devices are assigned a common IRQ # and INTA is asserted by either device, the ISR in each of the drivers is called to determine if they are interrupting (one says no and the other says yes—hardware is serviced and all is well). However, when the two devices are assigned different IRQ #s, only the ISR for one of the drivers is called. If the other device happened to be generating the interrupt, the system is locked up as the non-interrupting device's ISR is continually called in a loop.

I am inclined to believe that as long as the two PCI devices are assigned different IRQ #s by PnP when they both use the same INTA interrupt line on the PCI bus, both device's ISRs are not guaranteed to be consulted.

What can be done to cure this problem? Can something different be done in the driver during start time? In the IoConnectInterrupt() call? Right now I am simply passing the information handed to the driver by the PnP manager into the IoConnectInterrupt() call. Any other options? Can anything be done to the PCI configuration space of the end-devices or PCI-to-PCI bridge to influence the system's choice of IRQ #? I would like to understand this behavior better (what is going on under the covers).

Regards,
Cosmo

My PCI book says that the interrupt lines on your pci devices are directly connected to the same interrupt lines on the connector slot your bridge is plugged into. In other words, for interrupts, the bridge is not really in the picture. So the situation appears to be that the OS thinks that these devices have separately routable interrupts when in fact they motherboard has them or'd together. So somebody is confused. The choices are: me, the bios, or the os.

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