Re: How can Linux demage a motherboard?

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- *From*: floyd@xxxxxxxxxx (Floyd L. Davidson)
- *Date*: Fri, 20 Apr 2007 14:38:52 −0800

"Tom Szabo" <tom@xxxxxxxxxxxxxxxx> wrote:
....

> work on either. But when it loaded cpuspeed the power driver
> is hard coded in the /etc/cpuspeed.conf file on most Linux's
> so it was likely trying to load an inappropriate power
> module. Also, /etc/modprobe.conf might be suggesting modules
> to the kernel for loading that are really for Intel

> What you are saying regarding the powermanagement is in line with my
> thoughts, I suspected something on this line.

That is almost certainly the general idea of what is happening.

> Try installing linux on the Motherboard from scratch or only use an image
> on a hard disk from another server that's got exactly the same hardware.
> Another easy test would be to try a Live Linux CD like Knoppix and see
> if it reproduces the weird fan problem, I bet it won't.

> On the other hand, in your suggestion you have forgotten the fact that now
> the server doesn't run for more that 5 five minutes in first go after couple
> of hours of resting, and the second and subsequent startups are only a few
> seconds.....

He is correct. Although your attempts at running a system
configured for another motherboard might prevent you from easily
doing that now.

> Here is my real dilemma:
> The OS loaded some driver, module, etc and changed some behaviour.

Almost certainly it has to do with controlling the fans, which

makes it almost guaranteed to be lm_sensors related. The potential difficulty is that you have now written a configuration to the chip which monitors temperatures, and if so it that has to be cleared in order to prevent the faulty temperature shutdown.

The exact nature of the problem appears to be that you have either selected the wrong type of temperture tranducer, or given it a very low temperature as the alarm point, and the monitor chip thinks it is overheating when in fact it is not even at normal temperature. When it cools for a couple hours, it actually gets down to room temp and takes a significant amount of time to heat up. In the process the fans go through each stage of control from barely on to hitting it full blast. Then it shuts down. Of course if it is immediately restarted it takes much less time to hit the alarm temp.

Have you tried to boot to single user? I'm not sure how that is done on your particular machines, but with the LILO boot loader you would give it a boot name, such a "linux", and add the word "single" after it.

If the configuration is not being written to the monitor chip and if it is properly programmed into the boot scripts, it will not be done when booting to single user mode (just because an error in the script would prevent booting).

If you try that and it still does not, try booting from any other kernel, such as a live CD (for any system) and see if that will continue to run.

If you get it to run without shutting down, use whatever system you've boot as a "rescue system" and edit the boot scripts for your improper configuration to remove anything than initializes sensors.

If no matter what kernel you boot it shuts down, you've got yourself a *major* problem! You will have to figure out the right configuration for your server, set it up on another system, and then boot it with a cold box that will run long enough for that part of the boot process to be executed and reconfigure the sensors. It won't be an easy thing to figure out.

> That is
> understandable but that should only affect the server when the OS is loading.
> Here on the other hand, once the wrong image is booted up the first time the problem becomes permanent and not dependent on the OS any more, so tha changes are written some where into/onto the motherboard.....that is fine, I

> can leave with that too.
>
> But where does it gets written to so neither the BIOS reset or the bios
> patch can reverse it?

It does appear to be the configuration of the sensor monitoring
chip.

Another trick you might try is a reset, and instead of letting
it boot the OS, go to the BIOS setup. In the BIOS setup do
whatever is available for monitoring (temperatures, voltages,
etc.). As an example, on some older Tyan dual processor boards
for AMD processors the sensor monitoring chip would be about
half initialized in a normal boot, but would be fully
initialized only when the BIOS setup option to show voltages and
temperatures was entered. If the reset button was pressed after
that, then lm_sensors could monitor all of the temps and
voltages. But if the box was powered down it would reset the
chip completely, and only half of it was initialize when powered
up. That meant half the temperatures and voltages could not be
read by lm_sensors. (I wrote a C program to fully initialize
the monitor chip, and ran that as part of the boot process to
correct the problem.)

That monitor chip did not retain configuration when powered
down, as it seems yours is.

> Considering all simptoms, it seems like some sensory process gets adjusted
> to just below the normal oprating temperature.
> For example the CPU operates normally @ 50 degrees and normally the max
> operating temperatue is 80 degrees.
> Using this examplle, my stuffed image somehow managed to adjust the max
> operating temperature to 49.8 degrees. When I turn on the machine the first
> time, it takes a little while to get up to the 50 degrees, so I have say 5
> minutes...but next roung only 10 seconds, and after that it is down to 1 or
> 2 seconds.

Exactly.

> Any more clues?

I'm glad I'm not you... ;−)

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