

## Re: Linux on Capio II (Geode) ?

**Source:** <http://coding.derkeiler.com/Archive/General/comp.arch.embedded/2004-05/1711.html>

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> > *{time period} a nonmaskable SMM interrupt occurs. The Geode hardware  
> > doesn't support text modes natively. In text modes, the SMM ISR checks  
> > to see if the color or character memory has changed, and if so it  
>  
> We are using a Geode GX1 based Compaq Internet Appliance 2. We have  
> not experienced any of the problem you mentioned. The only strange*

Are you using text modes? The discussion we're having here relates to use of modes which, ordinarily, would be supported by character generator hardware (which the CS5530/GX1 combo lacks). Font/color rendering, blink text and cursor are all emulated in unpreemptible firmware. You'll note that there are many Geode BIOSes out there that show significant problems with text-mode scrolling in Linux, BTW.

There are other functions in Geode which also go through this baroque arrangement of HW/SW codependency, but text mode display rendering is one of the biggies. Geode is not a good choice for realtime applications unless you can get great vendor support for customized BIOSes (and not always even then).

> *thing is that I can only run at 1024x768 and my friend can only run at  
> 800x600. Any other video mode would get the monitor out of sync. I  
> am using Xfree 3.3.6 and my friend is using Xfree 4.2. Any idea why?*

The changes between these two versions are pretty radical, and in the case of 3.x servers, there are at /least/ three different forks of the source tree; two closed-source XF86\_SVGA servers (one from NS, one from a third party I have yet to identify), and one official open-source version from xfree86.org. I don't know that there is any good source of documentation on all of this besides the XFree86 source. Unfortunately the "official" NS sources are only available with an NDA (? I'm not sure how this is reconcilable with GPL).

Anyway, these versions all differ substantially in how they calculate and validate clock settings. The symptom you describe is, I'd say, par for the course (it can be instructive to scope the sync lines and see what's being set up, BTW!). If you are very careful to specify exact

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video mode setup in the ModeLine, you can \*usually\* get a particular mode working [except scandoubled modes – a patch is required for 4.x – see my webpage] but really the only way to ensure identical behavior between systems is to use the exact same binaries. An alternative option is to use the fbdev server running over kernel framebuffer console.

One problem with 4.x servers is that all the "built-in" implicit modelines need to be overridden. It can be very hard to work out exactly where the server is picking up its config information sometimes, and/or hard to work out why it is rejecting user-supplied modelines.