coreboot - Bug #119

Garbled video output in SeaBIOS with native gfx init on Lenovo T520 with Ivy Bridge chip

05/20/2017 12:40 AM - Julz Buckton

Status:	New		**Start date:**	05/20/2017
Priority:	Normal		**Due date:**	
Assignee:			**% Done:**	0%
Category:			**Estimated time:**	0.00 hour
Target version:				

Description

coreboot 4.6-166-g365d97e938

Attached are two photos showing the difference between video output with native and vgabios. Unseen in the first photo is also flickering with native init.

Previously when I had a Sandy Bridge chip (i5-2520M) I tried native init and video output was fine, although the text in SeaBIOS was much smaller/sharper than my current working config (vgabios with i5-3320M).

Not only is video output in SeaBIOS messy but Windows 10 fails to boot (I get a non-graphical "loading files" screen with garbled output instead of the standard blue logo with spinning dots).

The .config I attached is for my current vgabios config which I built today after again testing native init, but all options are the same other than having native init disabled and vgabios enabled.

History

#1 - 05/20/2017 12:42 AM - Julz Buckton

http://imgur.com/a/o0CW3

#2 - 06/02/2017 07:55 PM - Arthur Heymans

I think the C native graphic init for ivy bridge on LVDS output is flawed. An easy fix would be to use libgfxinit, something like https://review.coreboot.org/#/c/19412/ should work on t520.

#3 - 06/03/2017 12:50 PM - Nico Huber

I guess the wrong code path is selected for your case (Ivy Bridge processor paired with Cougar Point PCH) in src/northbridge/intel/sandybridge/gma_sandybridge_lvds.c where it says:

```
if ((bridge_silicon_revision() & BASE_REV_MASK) == BASE_REV_IVB) {
    return i915lightup_ivy(info, physbase, piobase, mmio, lfb);
}
```

This decision should be made by PCH and not by processor, I guess. You can try it with the above lines removed.

#4 - 06/05/2017 11:57 AM - Julz Buckton

Nico Huber wrote:

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src/northbridge/intel/sandybridge/gma_sandybridge_lvds.c where it says:

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}
```

This decision should be made by PCH and not by processor, I guess. You can try it with the above lines removed.

I did another build with the lines removed, and got this result:

http://imgur.com/a/C7Kme

After the wave of light finishes washing over the screen and fades out the machine just reboots.

#5 - 06/06/2017 11:28 AM - Nico Huber

Hmmm, looks like I guessed wrong. The code is possibly more broken than I thought. So your best option is to use libgfxinit, like Arthur said. Since it's written in Ada, you'd probably have to rebuild your coreboot toolchain with GNAT installed. Just install gnat (package sometimes called gcc-ada) in the same version as gcc, run make crossgcc-clean and make crossgcc-i386. Then apply the same changes as done in https://review.coreboot.org/#/c/19412/ for the X230 to the T520 and select "Use libgfxinit..." below the native gfx init (NGI) option. Just tell us if you need help with the patching.

Btw. Windows is currently not supported along with NGI. It needs additional help by a so called Video BIOS Table (VBT). Work to add that VBT to coreboot in a cross-platform way is in progress.

#6 - 06/08/2017 09:10 AM - Julz Buckton

Nico Huber wrote:

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> Since it's written in Ada, you'd probably have to rebuild your coreboot toolchain with GNAT installed. Just install gnat (package sometimes called
> gcc-ada) in the same version as gcc, run make crossgcc-clean and make crossgcc-i386. Then apply the same changes as done in
> https://review.coreboot.org/#/c/19412/ for the X230 to the T520 and select "Use libgfxinit..." below the native gfx init (NGI) option. Just tell us if
> you need help with the patching.
>
> Btw. Windows is currently not supported along with NGI. It needs additional help by a so called Video BIOS Table (VBT). Work to add that VBT
> to coreboot in a cross-platform way is in progress.

I made those changes and built coreboot with libgfxinit. The result is no power on display (not just a blank screen, the backlight never turns on at all). I tried with both VGA text mode and linear framebuffer under the display settings.

Could it be that libgfxinit is not compatible with my display panel? It is B156HW01 V.7.

#7 - 06/08/2017 10:27 AM - Nico Huber

It's unlikely that the panel is incompatible. Though if both code paths fail, maybe there is a problem with its EDID.

Please attach your .config, src/mainboard/lenovo/t520/gma-mainboard.ad* and, if possible, a coreboot log taken with
CONFIG_DEBUG_ADA_CODE=y and loglevel >= Debug.

#8 - 06/09/2017 05:35 AM - Julz Buckton

- File cbmem-c.txt added

- File gma-mainboard.ads added

- File .config added

Nico Huber wrote:

> It's unlikely that the panel is incompatible. Though if both code paths fail, maybe there is a problem with its EDID.
>
> Please attach your .config, src/mainboard/lenovo/t520/gma-mainboard.ad* and, if possible, a coreboot log taken with
> CONFIG_DEBUG_ADA_CODE=y and loglevel >= Debug.

By 'coreboot log' I assume you meant the output of ./cbmem -c, which I fetched after returning to a working config (that still had
CONFIG_DEBUG_ADA_CODE=y), not sure if it's still useful in that case. But it was not possible for me to fetch it while actually using libgfxinit of
course, as the machine wasn't really booting.

Files

.config	20.3 KB	05/20/2017	Julz Buckton
.config	20.9 KB	06/09/2017	Julz Buckton
gma-mainboard.ads	315 Bytes	06/09/2017	Julz Buckton
cbmem-c.txt	128 KB	06/09/2017	Julz Buckton