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Better Video performance in preboot

UEFI PlugFest– March 18-22, 2013

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Agenda

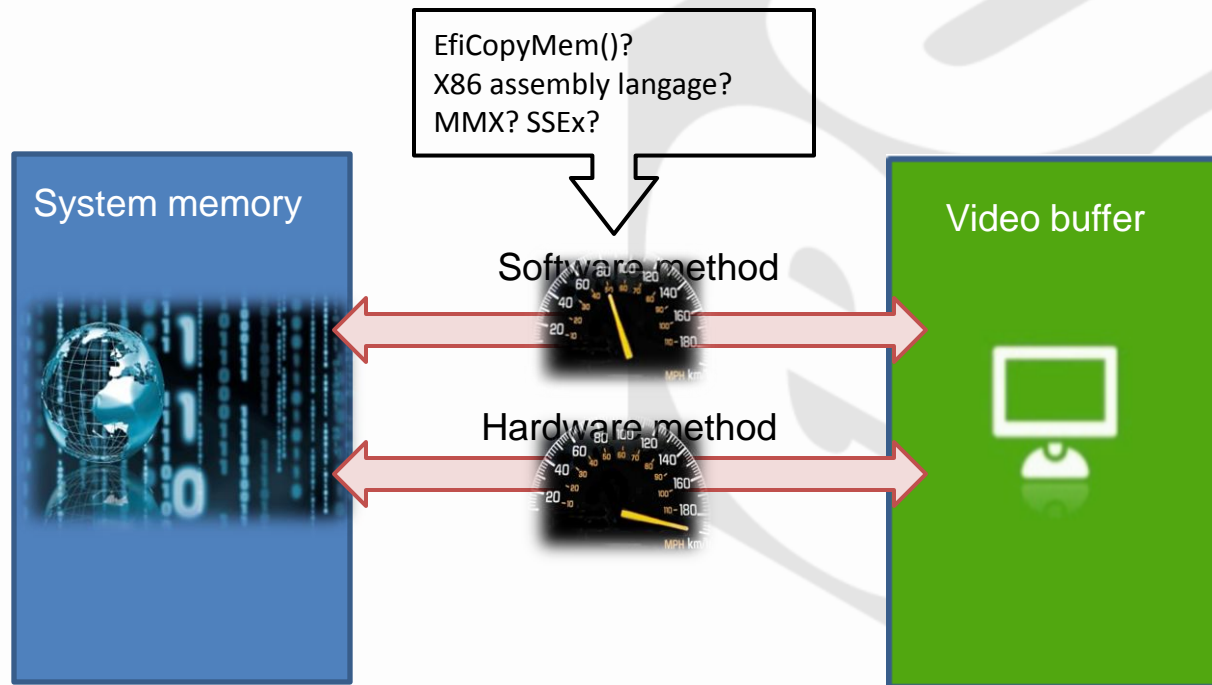


- Introduction to hardware BitBlt
- Why we need hardware BitBlt
- The enhancement of GOP
- Comparisons of hardware and software BitBlt
- Questions

Introduction



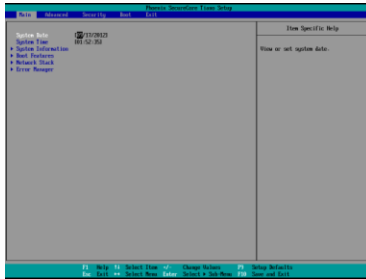
Hardware BitBlt (bit block transfer) accelerator supported in GOP.



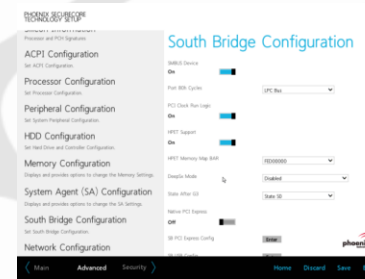
Why we need hardware BitBlit



- We need the better video performance for the modern and motional UI experience.



*StaticallyUI.m2ts shows the statically UI representation.



*MotionalUI.m2ts shows the motional UI representation.

- A bunch of data transferred between system memory and video memory.
 - 3MB for 1024X768 video resolution, that's $1024 * 768 * 4$ (1-pixel)
 - Approximate to 8MB for 1920X1080 video resolution, that's $1920 * 1080 * 4$ (1-pixel)

Why we need hardware BitBlt



- A bunch of data transferred between system memory and video memory.

We do use some faster moving instruction on the case the GOP driver can't provide the better performance of BitBlt.

For example,

```
movupd xmm1, [esi]
movupd [edi], xmm1
movupd xmm1,[esi + 10h]
movupd [edi + 10h], xmm1
```

This indeed improves the performance when move data between system memory and video buffer. However, it's not sufficient for the high VGA resolution platform. For example, the HD quality video mode.

Why we need hardware BitBlt



- For the HD quality video resolution.
- For the low cost (lower performance) platform.
- For the portable UI code.



An enhancement of GOP.BitBlt



- No spec change on GOP.BitBlt().
- Not specific to any IBV, available for all once implemented.
- Difficult for IBV to provide hardware GOP.Bitblt() alone.
- No immediate requirement for the 3D accelerations.
- Not required for the 2D accelerations except BitBlt.

Needs IHV's effort on implementing H/W BitBlt function...

Comparisons



- Window moving by different BitBlt methods.



*WindowMoving.m2ts video clip shows the window moving performance on different BitBlt methods.

- Graphic effect by different methods.



*GraphicEffic.m2ts video clip shows the graphic effect performance on different BitBlt methods.



Please visit Phoenix testing room for the detail information about GUI.





Questions?



Thanks for attending the
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