**Modify Android to Support Different LCD Monitor**

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1. **Grab information about the LCD.**

Information include - refresh rate, resolution (X and Y), pixel clock, left\_margin, right\_margin, upper\_margin, lower\_margin, hsync\_len, vsync\_len.

These parameters may be available from LCD panel datasheet. If this information is not available, an Extended Display Identification Data (EDID) can be read from the LCD panel. More details about EDID can be found from Wikipedia.

<http://en.wikipedia.org/wiki/Extended_display_identification_data>

With the information from EDID, a viewer may be needed to interpret EDID to readable message. Calculation is needed to transfer the information from EDID to the setting in frame buffer mode.

<https://www.kernel.org/doc/Documentation/fb/framebuffer.txt>

EDID viewers are available for both Windows and Linux. With these tools, EDID can be read back when the LCD panel is connected to PC.

Windows -

1. Monitor Asset Manager 2.6

<http://www.entechtaiwan.com/util/moninfo.shtm>

2. EDID Viewer utility

<http://www.eldim.fr/products/display-controller/fpdlite/fpdlite-free-tools>

Linux -

1. read-edid

<http://polypux.org/projects/read-edid/>

1. **Add a new frame buffer mode in drivers/video/modedb.c to support new display.**

Here is the example on the 10 inch LG display (960X540). Here is what I get from ‘read-edid’ –

# EDID version 1 revision 3  
Section "Monitor"  
 # Block type: 2:0 3:0  
 # Block type: 2:0 3:fe  
 # Block type: 2:0 3:fe  
 Identifier "LGD:1805"  
 VendorName "LGD"  
 ModelName "LGD:1805"  
 # Block type: 2:0 3:0  
 # Block type: 2:0 3:fe  
 # Block type: 2:0 3:fe  
 # DPMS capabilities: Active off:no Suspend:no Standby:no  
  
 Mode "960x540" # vfreq 59.629Hz, hfreq 33.512kHz  
 DotClock 40.750000  
 HTimings 960 1000 1128 1216  
 VTimings 540 543 546 562  
 Flags "-HSync" "-VSync"  
 EndMode  
 # Block type: 2:0 3:0  
 # Block type: 2:0 3:fe  
 # Block type: 2:0 3:fe  
EndSection

Based on the information above and, I modified **modedb.c** and changed mode 64 to the code below.

/\*64 1/4 1080p, for LG 10 inch LCD, added by R. Deng. 960x540p @ 59.94Hz/60Hz \*/

{.refresh = 60, .xres = 960, .yres = 540, .pixclock = 24540,

.left\_margin = 88, .right\_margin = 40,

.upper\_margin = 16, .lower\_margin = 3,

.hsync\_len = 128, .vsync\_len = 3,

.sync = 0,

.flag = FB\_FLAG\_RATIO\_16\_9,

.vmode = FB\_VMODE\_NONINTERLACED},

**After the modification, re-compiling the kernel is necessary.**

1. **Adjust LCD density**

At the situation when ‘Home’ buttons are not shown, adjust on LCD density may solve this problem. On the panda5 board file system, there is a file called /system/build.prop. In this file, there is a parameter called ro.sf.lcd\_density=160. Try to modify this to a smaller number, like 120.

1. **Other Links -**

OMAP Display Sub System (DSS)

<http://processors.wiki.ti.com/index.php/DSS2_SYSFS_Examples>

<http://juan-garibay.blogspot.com/2011/04/configuring-timmings-for-nec-display.html>

1. **Revision**

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| --- | --- | --- |
| Date | Author | Notes |
| 04/09/2013 | R. Deng | Initial release |
| 05/08/2013 | R. Deng | Add Section ‘Adjust LCD density’. |
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