

[GUIDE] Configure Displayport Timings



mdrjr Site Admin



[GUIDE] Configure Displayport Timings

Tue Aug 05, 2014 1:51 pm

All those steps can be done on the board itself to it your life easier.

Download the kernel sources: https://github.com/hardkernel/linux/arc ... 3.10.y.zip

Unzip it and edit the following file:

arch/arm/boot/dts/exynos5422_evt0.dtsi

~line 1178 you'll have uncomment the following code:

```
CODE: SELECT ALL
```

```
/*
dp_phy: video-phy@10040728 {
    compatible = "samsung, exynos5250-dp-video-phy";
    reg = <0x10040728 4>;
    #phy-cells = <0>;
};

dp: dp-controller@145B0000 {
    reg = <0x145b0000 0x10000>;
    interrupts = <10 3>;
        interrupt-parent = <&combiner>;
        compatible = "samsung, exynos5-dp";
    clocks = <&clock 1325>;
    clock-names = "clk dp1";
```

Note the /* and */ on the first and last part of the block above? Remove it.

Save this file.

Now to the next file to edit

arch/arm/boot/dts/exynos5422-odroidxu3.dts

~ line 806 You'll see the displayport configuration. There is the Timings for a AOC 22" screen that we use.

You are more likely to change the timing1: timing@1 { part

To do that.. You need to connect the monitor you want to run on a computer running LINUX and run the following command:

cvt 1920 1080 60 -r

This is pretty much the explanation..

its "cvt Xres Yres RefreshReate -r"

That will return something like

Modeline "1920x1080R" 138.50 1920 1968 2000 2080 1080 1083 1088 1111 +hsync -vsync

Follow the table below to understand how to calculate that:

```
MODELINE
            "1920x1080R"
                                    138.5 1920
                                                  1968 2000 2080 1080 1083 1088 1111
              RESOLUTION
                                             HR
                                                   SH1 SH2 HFL
                                                                    VR SV1
                                                                               SV2 VFL
          CLOCK-FREQUENCY = CF * 1000 * 1000
          HFRONT-PORCH = SH1 - HR
          HBACK-PORCH = HFL - SH2
          HSYNC-LEN = SH2 - SH1
          VBACK-PORCH = VFL - SV2
          VFRONT-PORCH = SV1 - VR
          VSYNC_LEN = SV2 - SV1
xu3dpfinalwork.png (25.58 KiB) Viewed 18455 times
after you editted that file and saved it..
run..
make odroidxu3_defconfig && make dtbs
and copy the arch/arm/boot/dts/exynos5422-odroidxu3.dtb file to /media/boot/exynos5422-odroidxu3.dtb
      OverSun
                                                                                                        66
Re: [GUIDE] Configure Displayport Timings
Mon Aug 11, 2014 5:01 am
Question #1: will CEC work through displayport? Are that lines connected there?
mdrjr
Site Admin
                                                                                                         66
Re: [GUIDE] Configure Displayport Timings
Mon Aug 11, 2014 5:07 am
     66 OverSun wrote:
     Question #1: will CEC work through displayport? Are that lines connected there?
There's no CEC over DP. CEC over DP is only on the HDMI mode that is not supported since Exynos has a eDP port.
xauser
                                                                                                         66
Re: [GUIDE] Configure Displayport Timings
Sat Aug 23, 2014 5:40 am
I have a 1920x1200 60 Hz monitor that I want to connect to xu3 via display port.
So I got this
Modeline "1920x1200R" 154.00 1920 1968 2000 2080 1200 1203 1209 1235 +hsync -vsync
RESOLUTION CF HR SH1 SH2 HFL VR SV1 SV2 VFL
Clock Frequency = CF*1000*100 = 15400000
HFront Porch = SH1 - HR = 48
HBack Porch = HFL - SH2 = 80
HSync Len = SH2 - SH1 = 32
```

VBack Porch = VFL - SV2 = 26 VFront Porch = SV1 - VR = 3 VSync Len = SV2 - SV1 = 6and entered these values in arch/arm/boot/dts/exynos5422-odroidxu3.dts for the AOC 22. After the reboot my monitor has a signal on display port but complains about ... "Input Signal Out Of Range, Change Settings To 1920x1200 60 Hz" What have I done wrong here? mdrjr Site Admin 66 Re: [GUIDE] Configure Displayport Timings **Sat Aug 23, 2014 6:09 am** Do you have any error on dmesg? if you replug the cable it works? Do you have HDMI Connected too? xauser 66 Re: [GUIDE] Configure Displayport Timings **Sat Aug 23, 2014 3:36 pm** Started the system without DP and HDMI connected DP gets connected first time [c0] exynos-dp 145b0000.dp-controller: EDID data does not include any extensions. [c0] exynos-dp 145b0000.dp-controller: EDID Read success! [c0] exynos-dp 145b0000.dp-controller: Link Training Clock Recovery success [c0] exynos-dp 145b0000.dp-controller: Link Training success! [c0] exynos-dp 145b0000.dp-controller: Timeout of video streamclk ok [c0] exynos-dp 145b0000.dp-controller: unable to config video DP gets disconnected and connected again [c0] exynos-dp 145b0000.dp-controller: EDID data does not include any extensions. [c0] exynos-dp 145b0000.dp-controller: EDID Read success! [c0] exynos-dp 145b0000.dp-controller: Link Training Clock Recovery success [c0] exynos-dp 145b0000.dp-controller: Link Training success! Monitor reports input signal out of reach mdrir Site Admin 66 Re: [GUIDE] Configure Displayport Timings **Sun Aug 24, 2014 1:09 am** Can you try setting 1920x1080 instead and see if it works? 66

Re: [GUIDE] Configure Displayport Timings

Sun Aug 24, 2014 2:12 am

Same result with 1920x1080@60Hz

These are my changes to the dts file. Clock frequency seems to be way off to the example in the kernel.





Re: [GUIDE] Configure Displayport Timings

Sun Aug 24, 2014 8:03 am

Stats of my monitor:

Preferred Detailed Timing:

Pixel Clock: 154 Mhz

Horizontal Active : 1920 pixels Vertical Active : 1200 lines

Monitor Range Limit:

Maximum Vertical Frequency : 61 Hz Minimum Vertical Frequency : 59 Hz Maximum Horizontal Frequency : 80 KHz Minimum Horizontal Frequency : 24 KHz

Maximum Pixel Clock: 170 MHz

With this modeline:

Modeline "1920x1200R" 154.00 1920 1968 2000 2080 1200 1203 1209 1235 +hsync -vsync

in odroidxu3 my monitor complains about:

horizontal being: 64KHz and vertical: 52Hz

If I get that right then the xu3 generates, with the recommended calculation for clock-frequency, a vertical value that my monitor is not capable of

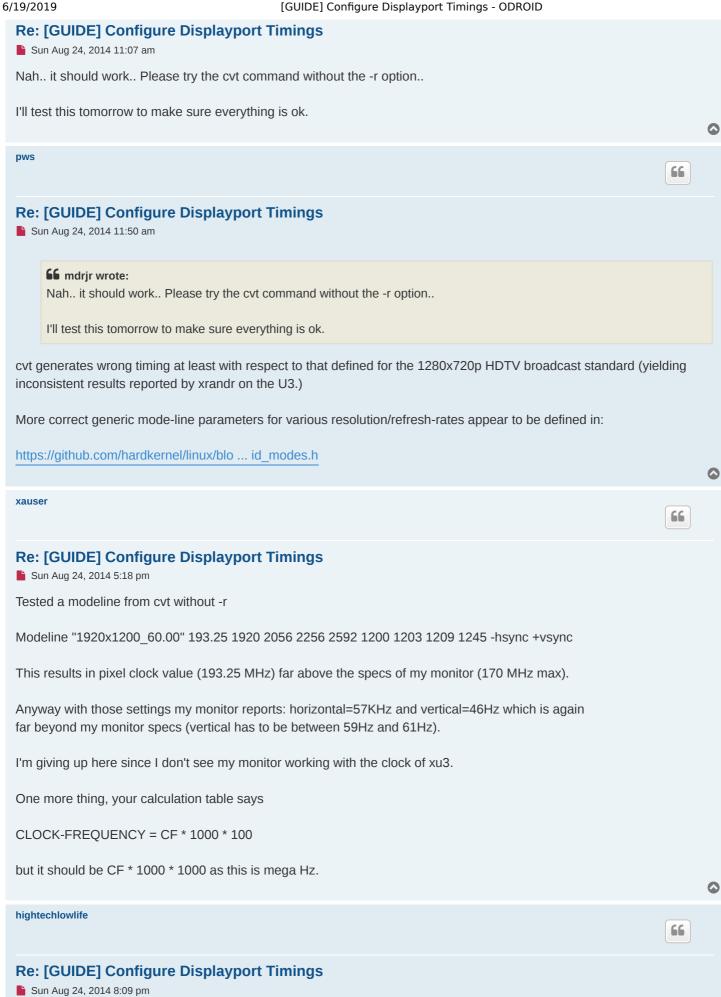
So no display port for me?



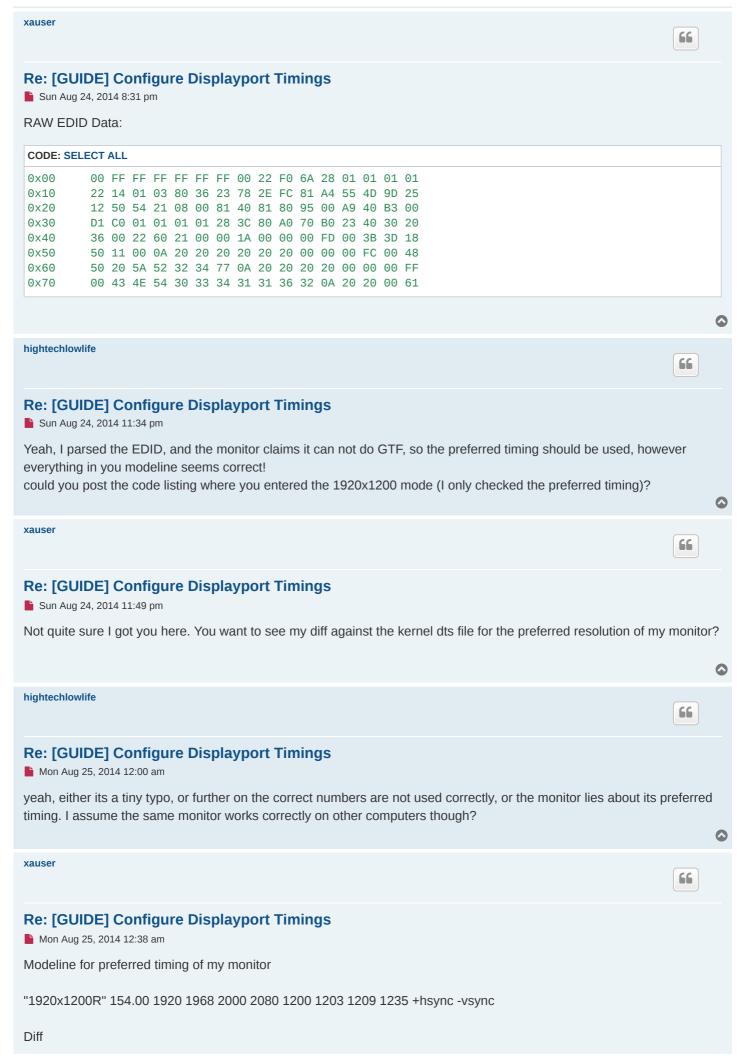
mdrjr

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can you post a hex dump of the (E-)EDID structure with any present timing extensions for the 1900x1200 display?



(Monitor reports "Singal out of range horizontal=64KHz, vertical=52Hz)

And this is the output of xrandr with the same monitor and the same cable using amd64 linux with nouveau driver.

```
CODE: SELECT ALL
Screen 0: minimum 8 x 8, current 1920 x 1200, maximum 16384 x 16384
DVI-I-O disconnected primary (normal left inverted right x axis y axis)
DVI-I-1 disconnected (normal left inverted right x axis y axis)
DVI-I-2 disconnected (normal left inverted right x axis y axis)
HDMI-0 disconnected (normal left inverted right x axis y axis)
DP-0 disconnected (normal left inverted right x axis y axis)
DVI-I-3 disconnected (normal left inverted right x axis y axis)
DP-1 connected 1920x1200+0+0 (normal left inverted right x axis y axis) 546mm x 352mm
   1920x1200
                  60.0*+
   1920x1080
                 60.0
   1680×1050
                 60.0
  1600x1200
                60.0
   1440×900
                 59.9
   1280x1024
                  60.0
```

hightechlowlife



Re: [GUIDE] Configure Displayport Timings

Mon Aug 25, 2014 3:38 am

Well for the correct 154Mhz we should get

```
f_h = 154 \text{ Mhz}/(2080) = 74.038 \text{ kHz} and f_v = 154 \text{ Mhz}/(2080*1235) = 59.95 \text{ Hz}
```

when I reverse the calculation with the observed frequencies which are both too low:

```
f'_h = 64 \text{ kHz} to compute f_pix1 = 64 \text{ kHz} * 2080 = 133.12 \text{ Mhz}
f'_v = 52 \text{ Hz} to compute f_pix2 = 52 \text{ Hz} * 2080*1235 = 133.5776 \text{ Mhz}
```

since these numbers are very close, it seems the the XU3 is for some reason setting the pixel clock too low (btw what is the maximum pixel clock on XU3 for hdmi and for eDP?) in what file, what line of kernel/driver code is the number from the dts file interpreted? where is the physical clock set?

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Re: [GUIDE] Configure Displayport Timings

Mon Aug 25, 2014 5:20 am

Max pixel clock for HDMI is 148.5Mhz (1080p60hz)

For the eDP port I can't remember but its the enough for 4k@30hz

Now.. back to calculations here...

Instead of using cvt to generate those times..

I used xrandr to extract the correct timings from my monitor and configure it.

So..

Try this and let me know if it works for you. If it works I'll update the guide 😜



run xrandr --verbose

You'll find the line that is the correct mode for your monitor.. Here's a example of mines.

66

2560x1440 (0x29c) 241.5MHz +HSync -VSync *current +preferred h: width 2560 start 2600 end 2632 total 2720 skew 0 clock 88.8KHz

v: height 1440 start 1443 end 1448 total 1481 clock 60.0Hz

hactive = $\langle 2560 \rangle$; (horizontal size. First part of the 2560×1440) vactive = <1440>; (vertical size. second part of the 2560x1440).

clock-frequency = 241.5Mhz = 241500000 (241.5*1000*1000)

hfront-porch = h:start - hactive hback-porch = h:total - h:end hsync-len = h:end - h:start

vback-porch = v:total - v:end vfront-porch = v:start - vactive vsync-len = v:end - v:start

Let me know if using xrandr works for you so I can update the guide.





Re: [GUIDE] Configure Displayport Timings

Mon Aug 25, 2014 5:54 am

xrandr --verbose



1920x1200 (0x283) 154.0MHz +HSync -VSync *current +preferred h: width 1920 start 1968 end 2000 total 2080 skew 0 clock 74.0KHz v: height 1200 start 1203 end 1209 total 1235 clock 60.0Hz

This look equal to the cvt output

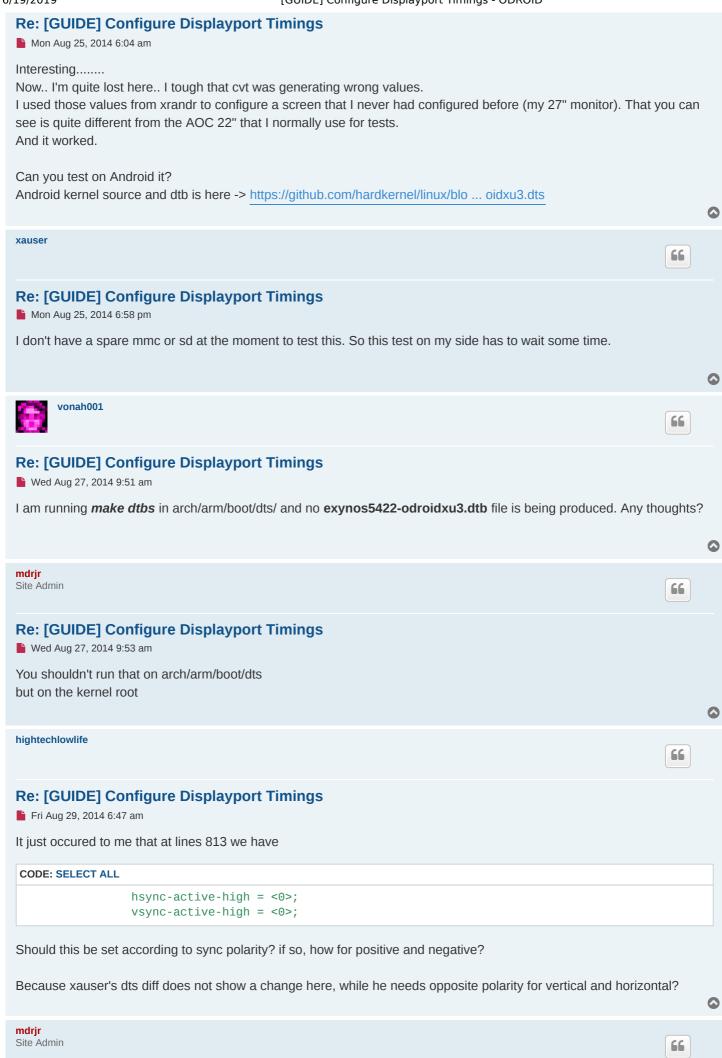


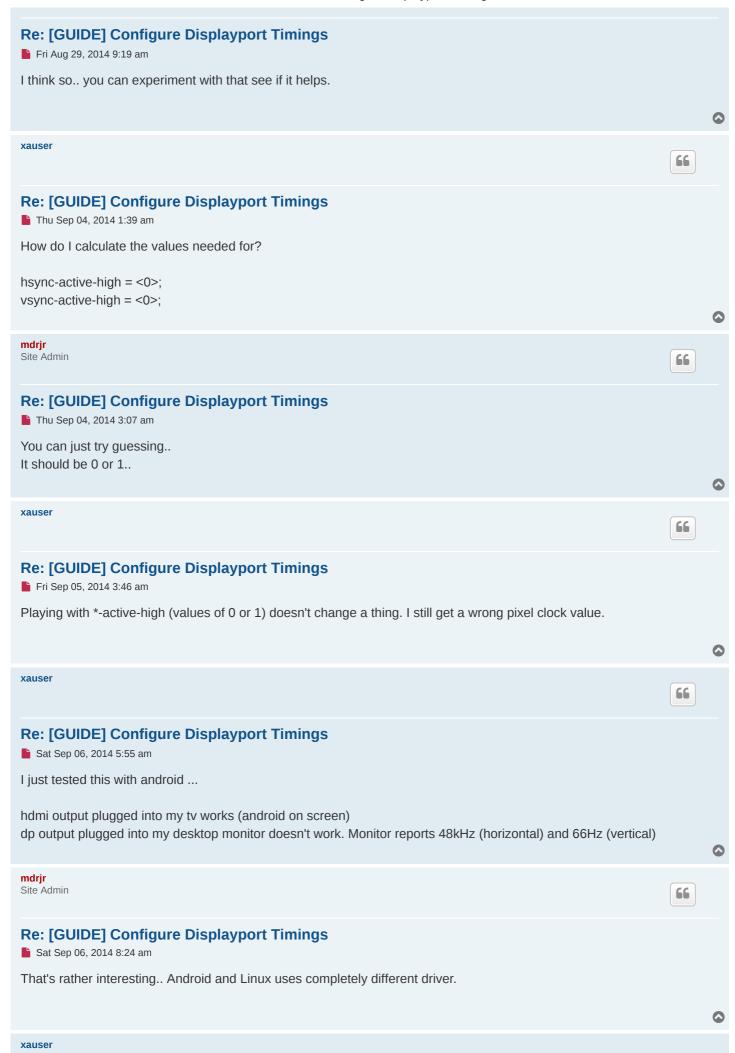
1920x1200 59.95 Hz (CVT 2.30MA-R) hsync: 74.04 kHz; pclk: 154.00 MHz Modeline "1920x1200R" 154.00 1920 1968 2000 2080 1200 1203 1209 1235 +hsync -vsync

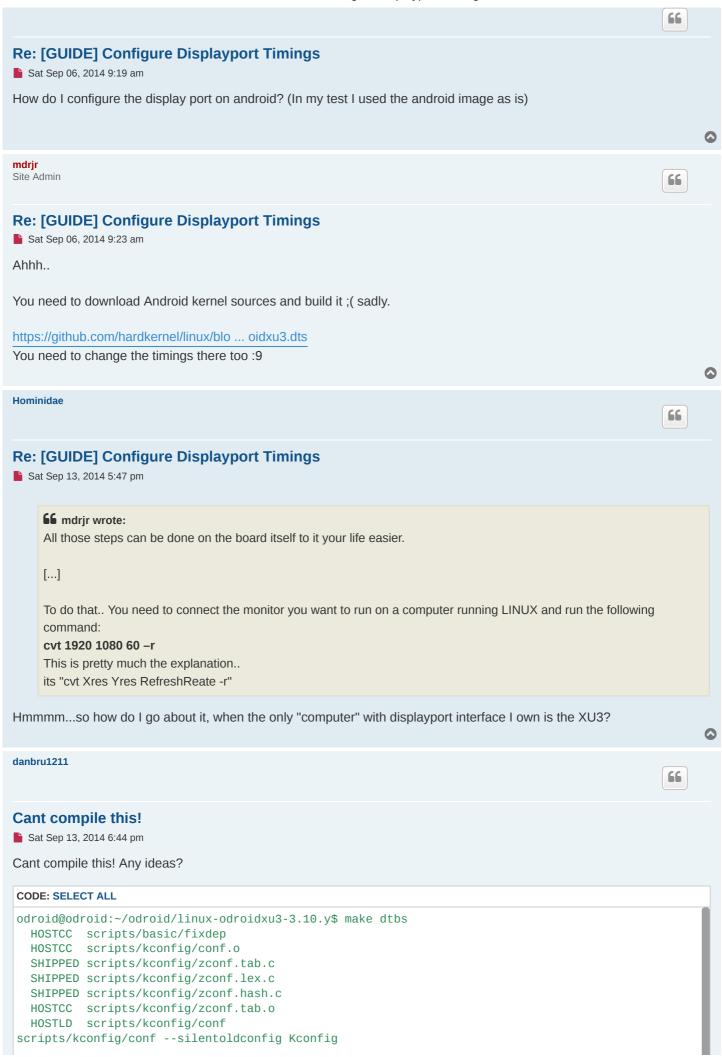


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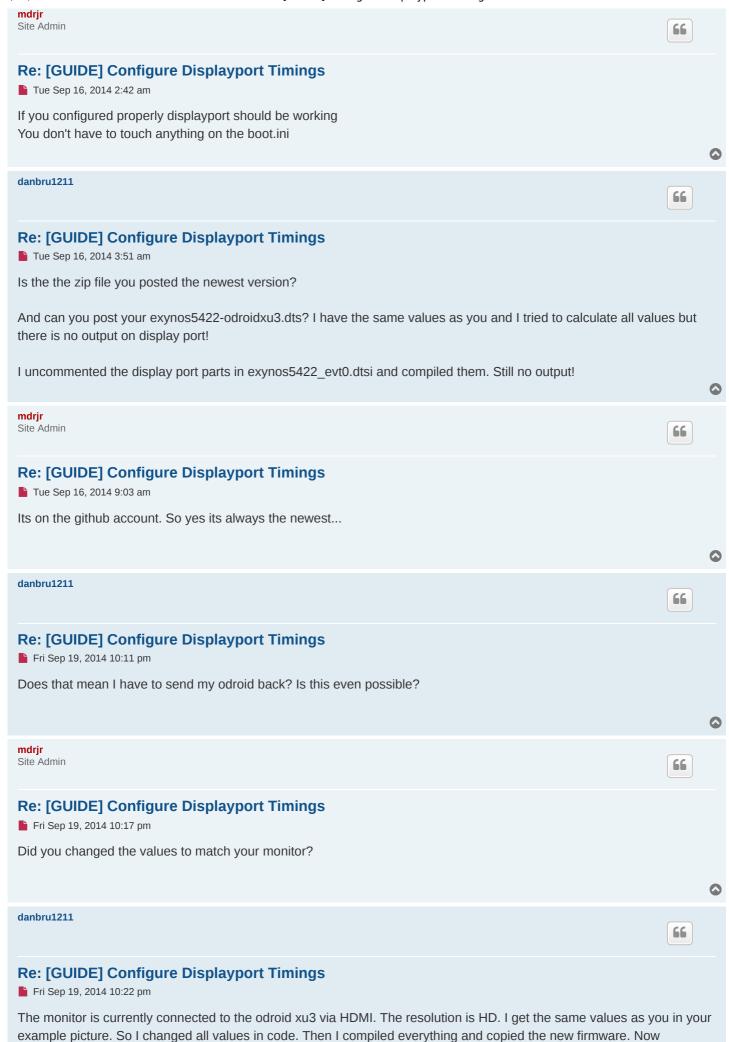




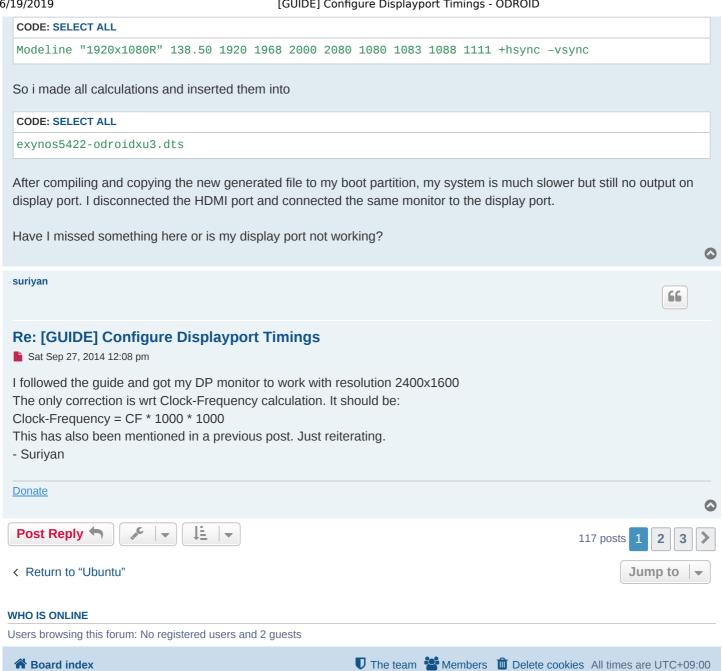




```
*** Configuration file ".config" not found!
*** Please run some configurator (e.g. "make oldconfig" or
mdrjr
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                                                                                                       66
Re: [GUIDE] Configure Displayport Timings
Sun Sep 14, 2014 6:56 am
run:
make odroidxu3 defconfig
first 😛
danbru1211
                                                                                                       66
Re: [GUIDE] Configure Displayport Timings
Mon Sep 15, 2014 6:57 pm
Could you add that command to your first post? Would save me a lot of time!!!
danbru1211
                                                                                                       66
Re: [GUIDE] Configure Displayport Timings
Tue Sep 16, 2014 2:02 am
After doing all steps mentioned in the first post, I still get no output from my DisplayPort!
Should I enable it somewhere?
I have the default boot.ini:
CODE: SELECT ALL
ODROIDXU-UBOOT-CONFIG
# U-Boot Parameters
setenv initrd_high "0xffffffff"
setenv fdt_high "0xffffffff"
# Mac address configuration
setenv macaddr "00:1e:06:61:7a:39"
# Basic Ubuntu Setup. Don't touch unless you know what you are doing.
setenv bootrootfs "console=tty1 console=tty5AC2,115200n8 root=UUID=e139ce78-9841-40fe-8823-96a304a
How could I change the line
CODE: SELECT ALL
setenv videoconfig "video=HDMI-A-1:1280x800@60"
so that the display is coming out the DisplayPort?
```



6/19/2019 [GUIDE] Configure Displayport Timings - ODROID everything is "laggy" and mouse movements are slow. But still no ouput on DisplayPort (still only HDMI) and also no 4k. An update of firmware fixed my "LAG"-Problem. But not my DisplayPort! Why isnt DisplayPort enabled by default? mdrjr Site Admin 66 Re: [GUIDE] Configure Displayport Timings Fri Sep 19, 2014 10:41 pm Because Exynos DP can't handle EDID readings. So you have to manually configure your monitor.. sadly. danbru1211 66 **Re:** [GUIDE] Configure Displayport Timings **Sat Sep 20, 2014 6:42 am** What does that mean? Are the values invalid when the monitor is connected via HDMI? Are they different when I connect it via DP? And how can I configure it manually? When I plug the same monitor into a blueray player with DP everything works fine. Why is it that hard on the odroid xu3? Does nobody else have the same problems? mdrjr Site Admin 66 Re: [GUIDE] Configure Displayport Timings **Sat Sep 20, 2014 7:43 am** Follow the guide on the OP and it should work. HDMI and DP are two completely different things on Exynos. (Not ODROID-XU3 especific, its how the Samsung chip works). The DP part of Exynos can't read your monitor values and self configure itself like HDMI does. So you have to follow the guide on OP to make it work. danbru1211 66 Re: [GUIDE] Configure Displayport Timings **Sat Sep 20, 2014 9:49 pm** Okay, i understand that I have to insert the values. But thats exactely what I did. I ran this command: **CODE: SELECT ALL** cvt 1920 1080 60 -r And I get the same output as you in your first post!





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