User Manual

User Manual

Customer Support

Display Configuration Tool User Guide

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0.1	2013/6/26	Xiaokuan Shi	Initial Draft
0.2	2014/04/21	Shuchen Xie	V0.2
0.2.1	2015/09/11	Zeng Luo	V0.2.1 stop idlemgr before using fbconfig
2.0	2017/01/03	Le Yang	Disable layer dump function for security

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1 Introduction

1.1 Overview

The purpose of ***Display Config Tool*** is to simplify the actions of adjustment for LCM Driver IC parameters , and also the adjustment of DSI settings .

One can adjust the parameters of LCM Driver and DSI by using this tool,without modify the source code or compile it and download .

Basically, we use ADB shell to input commands or configuration files which indicate the specific Driver IC command queue or DSI parameters , as shown in Figure 1 .

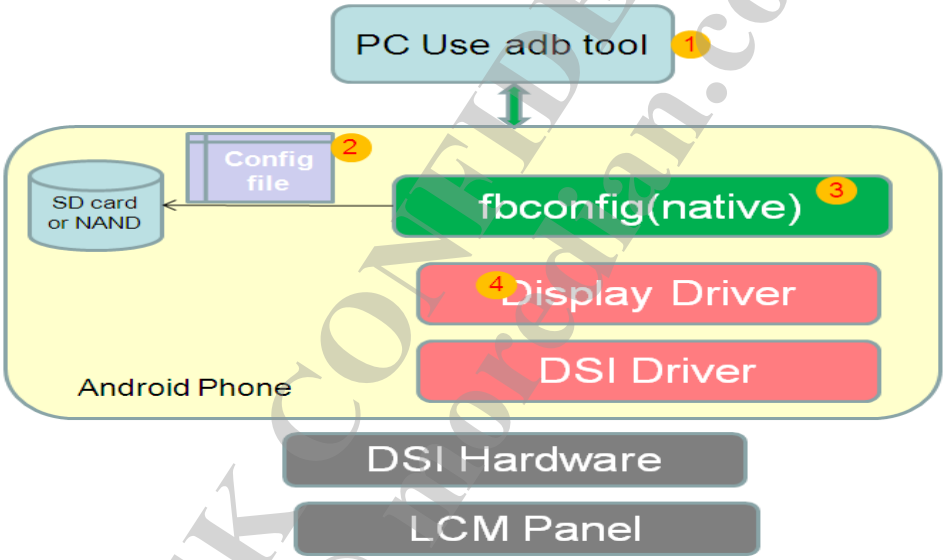

Figure 1

1. PC connect with phone via adb ;
2. ADB push config file to phone;
3. ADB shell to execute the daemon tool(fbconfig);
4. Daemon tool will run-time loading new parameters to display & DSI driver;

1.2 fbconfig

The ***fbconfig*** is a native executable which can accept commands or config file as parameters . You can find this executable in alps\out\target\product\mt6582_phone_qhd\system\bin\fbonfig after build your project .And as you have known , mt6582_phone_qhd is the project name .

Now ***fbconfig*** can provide some functions ,such as configure LCM Driver IC ,set MIPI Clock and so on. If you run ***fbconfig*** under */system/bin* folder ,you will get the functions which currently support .Figure 2 shows the current supported functions .

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Figure 2: the supported functions

1.2.1 fbconfig and idlegmr

After Jade(MT6755) there is a display driver module called idlemgr which is for power saving. Idlemgr will modify hardware settings as fbconfig does. Please stop idlemgr before using fbconfig as below to aovid interference:

echo enable_idlemgr:0 > /d/mtkfb

If you have finished jobs with fbconfig, please start idlegmr again as below:

echo enable_idlemgr:1 > /d/mtkfb

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2 fbconfig functions

2.1 driver_ic_config

If you want to configure Driver IC ,you need to put the configuration file under the */data* folder.

ADB push command can be used ,for example : #***adb push D:\lcm_config /data***

The name of configuration file(here is lcm_config) is up to you to decide ,but you must put it under ***/data*** folder .

You can run **./fbconfig driver_ic_config lcm_config** to apply the commands in the configuration file into Driver IC ,as shown below.

```
root@mt6582_phone_qhd:/system/bin # ./fbconfig driver_ic_config lcm_config
搜狗拼音 半 .
```

If you forget to indicate the name of configuration file ,you will the follow warning message ,as shown below :

```
root@mt6582_phone_qhd:/system/bin # ./fbconfig driver_ic_config
./fbconfig driver_ic_config
[W]please indicate config file name for lcm configuration!!
[W]Config file should be placed under /data folder !
root@mt6582_phone_qhd:/system/bin #
```

We support two styles of configuration file.

Style1:

```
MS:0x28
PIN:0x01
MS:0x05
TYPE:0x39:CMD:0xFF:0x01:{0xEE }
MS:0x02
TYPE:0x39:CMD:0x26:0x01:{0x08 }
MS:0x02
TYPE:0x39:CMD:0x26:0x01:{0x00 }
MS:0x02
TYPE:0x39:CMD:0xFF:0x01:{0x00 }
MS:0x14
PIN:0x00
MS:0x01
PIN:0x01
MS:0x28
TYPE:0x39:CMD:0xC2:0x01:{0x08 }
TYPE:0x39:CMD:0xBA:0x01:{0x02 }
TYPE:0x39:CMD:0x44:0x02:{0x02,0x80 }
TYPE:0x15:CMD:0x35:0x01:{0x00 }
TYPE:0x05:CMD:0x11:0x00:{}
MS:0x78
TYPE:0x05:CMD:0x29:0x00:{}
```

MS:0x28 means you want to sleep 40ms,in hex format ,that is ***msleep(0x28)***;

PIN:0x01 means you want to set pin here;

PIN:0x00 means you want to reset pin here ;

And TYPE:0x39:CMD:0xFF:0x01:{0xee } means the TYPE for this command 0x39 ,and address is 0xff, the number of parameters is 0x01 ;

Please MAKE SURE the “x” for hex format must be lower case in every line ;

Please MAKE SURE there should be one **SPACE** before the last “}”;

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You can put any numbers commands in the configuration file as you want ,using ***fbconfig*** ,such commands can be loaded into Driver IC directly and immediately.

Style 2:

Please remember add a fixed string “driver_ic_config_file:v2” at the first line of the file.

```
driver_ic_config_file:v2
PIN:0x01
PIN:0x00
MS:0x0a
PIN:0x01
MS:0xa
{0x40361500}
{0x703a1500}
{0x04b02300}
{0x00000500}
{0x00000500}
{0x01d62300}
{0x00072902,0x000014b3,0x00000000}
{0x00032902,0x00000cb4}
{0x00032902,0x00d33ab6}
{0x00042902,0x000000c3}
{0x00072902,0x000000c0,0x00000001}
{0x00242902,0x006180c1,0x96329d21,0x0002307a,0x00
{0x00092902,0x0af031c2,0x00080800,0x00000000}
{0x001b2902,0x000070c4,0x00000000,0x00000000,0x00
{0x002a2902,0x50065ac6,0x00005006,0x00000000,0x00
{0x000b2902,0xc0031fcb,0x000040f8,0x0000c002}
```

{0x40361500}: ‘0x15/0x23’-short packet, ‘0x36’ – command,‘0x40’-paramters, 0x‘00’-mtk extra flag, always be ’0’ for short packet.

{0x00032902,0x00000cb4}:’0x29/0x39’-long packet,’0x03’-paramters number in byte,’0x02’-mtk extra flag, always be 0x2 for long packet, ‘0x00000cb4’-paramters.

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2.2 lcm_get_id

if you run ***fbconfig*** with the option of “lcm_get_id ” ,you can get the LCM ID number .

```
root@mt6582_phone_qhd:/system/bin # ./fbconfig lcm_get_id
```

But ***lcm_drv->get_lcm_id()*** should be implemented for specific lcm driver in advance .
You will definitely get zero ,if you have not implemented it in lcm driver ,because the current flow is shown as below :

```
case LCM_GET_ID:
{
    LCM_DRIVER * lcm = lcm_drv;
    // get_lcm_id() need implemented in lcm driver ...
    #if 0
    unsigned int lcm_id =lcm->get_lcm_id();
    #else
    unsigned int lcm_id = 0 ;
    #endif
    return copy_to_user(argp, &lcm_id,  sizeof(lcm_id)) ? -EFAULT : 0;
}
```

And you have not implemented ***lcm_drv->get_lcm_id()*** and run ***fbconfig*** with option “lcm_get_id”, you can get such message ad below :

```
root@mt6582_phone_qhd:/system/bin # ./fbconfig lcm_get_id
./fbconfig lcm_get_id
lcm_get_id :0
====please make sure you have implemented get_lcm_id() in lcm driver==
```

2.3 mipi_set_lane

The lane number in Driver IC side should also be changed if DSI Lane number is changed to another value .This means Driver IC should be re-configure after you change Lane number for DSI. The steps for change Lane number is as below :

(1)set MIPI Lane number ;
(2)configure Driver IC ;

In order to set Lane number to 3 , please run ***fbconfig*** as below :

```
root@mt6582_phone_qhd:/system/bin # ./fbconfig mipi_set_lane 3
```

After this , in order to re-configure Driver IC ,please run ***fbconfig*** as below :

```
root@mt6582_phone_qhd:/system/bin # ./fbconfig driver_ic_config lcm_config
```

2.4 mipi_set_clock

In order to change MIPI clock to 255(MHz) ,please run ***fbconfig*** as below :

```
root@mt6582_phone_qhd:/system/bin # ./fbconfig mipi_set_clock 255
```

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2.5 mipi_set_timing

MIPI Timing can be changed by this option . if you run : ***./fbconfig mipi_set_timing HS_ZERO 0x12*** , then the value of HS_ZERO will be changed to 0x12 ;You can check which timing can be changed by issuing ***./fbconfig mipi_set_timing*** directly .

```
Usage Example: ./fbconfig mipi_set_timing HS_ZERO 0x23
TIMCON0_REG:HS_PRPR  HS_ZERO  HS_TRAIL

TIMCON1_REG:TA_GO  TA_SURE  TA_GET  DA_HS_EXIT

TIMCON2_REG:CLK_ZERO  CLK_TRAIL  CONT_DET

TIMCON3_REG:CLK_HS_PRPR  CLK_HS_POST  CLK_HS_EXIT

VDO MODE :HPW  HFP  HBP  VPW  VFP  VBP
```

2.6 te_set_enable

Do not support this on ROME.

2.7 mipi_set_non_cc

You can set non-continuous mode for HS clock Lane by issuing this option:

```
root@mt6582_phone_qhd:/system/bin # ./fbconfig mipi_set_non_cc
./fbconfig mipi_set_non_cc

Usage: <./fbconfig mipi_set_non_cc Enable>
```

2.8 lcm_get_esd

This option can get register value and ECC , Error Report in Driver IC side .

```
root@mt6582_phone_v1_2:/system/bin # ./fbconfig lcm_get_esd
./fbconfig lcm_get_esd

Usage: <./fbconfig lcm_get_esd Address Parameter_number>
```

2.9 set_dsi_id

This is a new option to select DSI controller due to there are two DSI controllers on ROME.

Usage:./fbconfig set_dsi_id $DSI_ID

$DSI_ID:0- DSI0, 1-DSI1,2-DUAL DSI

Note:

1) This command can only be executed on ROME, only ROME has two DSI controllers.

2) This action only need once unless you want to switch to the other controller.

A general flow below:

./fbconfig set_dsi_id 1

set_paramters 1

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get_paramters 2
…….
./fbconfig set_dsi_id 0
set_paramters 1
get_paramters 2
…….
3)the default controller is DSI0

2.10 get_dsi_id

Get current DSI which you are seting or getting.
./fbconfig get_dsi_id
The return value will be 0,1,2.
More details please refer to *2.10 set_dsi_id* .

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3 Contact

Please feel free to contact me if you have any question about Display Config Tool. We are willing to hear your feedback and kindly advice.

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