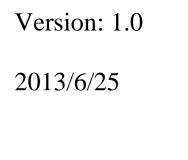


Porting Guide of Sensortek stk3x1x Android Optical Sensor Driver for MTK Platform

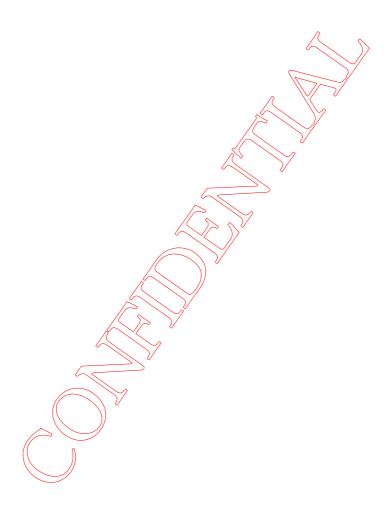


Sensortek Technology Corporation



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Change Log

		Citalig	<u> </u>		
Date	Version	Change log	Sponsor	Corresponding Sensortek Android Optical Sensor Driver Pack for MTK platform	Remark
2013/6/25	1.0	Initial Release	Lex Hsieh	V3.1.3 or previous	
				20	
			7		



Linux Kernel Driver Integrating Notes

- 1. In ProjectConfig.mk, set
 - $CUSTOM_KERNEL_ALSPS = stk3x1x$
 - to build stk3x1x driver.
- 2. Put stk3x1x.c and stk3x1x.h in stk3x1x folder to the following path: mtk_source\mediatek\custom\common\kernel\alsps\stk3x1x\
- 3. Replace original cust_alsps.c and cust_alsps.h with cust_alsps.c and cust_alsps.h in stk3x1x_driver folder and modify cust_alsps.c:
 - a. For Proximity Sensor, driver will only report 0 (near) or 1 (far) to input event system.
 - I. Set ".polling_mode_ps =1" to set PS Polling mode.
 - II. Set ".polling_mode_ps =0" to set PS Interrupt mode.
 - b. For Ambient Light Sensor, driver will report lux value to input event system by lookup table.
 - Set ".polling_mode_als =1" to set ALS Polling mode.
 - II. Set ".polling_mode_als =0" to set ALS Interrupt mode.
 - c. Modify ".als_level array" and ".als_value array" if you want to adjust ALS lookup table.
 - d. Modify ". psctrl_val", ".alsctrl_val", and ".ledctrl_val" for performance tuning, please refer to stk3x1x datasheet.
 - e. ".ps_high_thd_val" and ".ps_low_thd_val" are not used anymore, modify "STK_LT_N_CT", "STK_HT_N_CT", and "STK_MAX_MIN_DIFF" in stk3x1x.c for detection distance tuning.

```
istatic struct alops hy cust alops hw - [
     /* i2c bus number, for mt657m, default=0. For mt6509, default=3
#ifdef MT6589
     .12c_num
$elif defined(MT6372)
     .i2c num
     .i2c_num
     //.polling_node =1,
     .polling_mode_ps =1,
     .polling_mode_als =1,
     .power id - MT65XX POWER NONE,
                                                 LDO is not
     .power_vol = VOL_DEFAULT,
                                              /*LDO is not used*/
     .i2c_addr = {0x90, 0x00, 0x00, 0x00} /**90x3x1x*/
     .als_level = {5, 9, 36, 59, 82, 192, 205, 273, 500, 845, 1136, 1545, 2364, 4655, 6982}, /* als_code */
.als_value = {0, 10, 40, 65, 40, 445, 225, 300, 550, 930, 1250, 1700, 2600, 5120, 7680, 10240}, /* lux */
     .state val = 0 \times 0,
                                /* disable all %/
                              /* ps persistance=4, ps gain=64x, 95_IT=0.391ms */
/* alo_poroiotanco=1, alo_gain=64x, ALS_IT=50mc */
     .pectrl_wal = 0x71,
     .almotrl_val = 0x38,
     .ledctrl_vel = 0xFF;
                                  /* 180mA IFOR, 64/64 LED duty */
                                  77 50 mm/
     .wait val -0x7,
     .ps_high_thd_val = 1700,
     .ps_low_thd_val = 150
```

4. If ALS/PS interrupt mode is set, please set correct gpio information.



Enable Android Auto-brightness

After you completed the driver, you may see the ALS and PS value by using StkRawViwer.apk. Once the reading is correct, please also enable "Auto-brightness".

- 1. If you use overlay for your device setting, please modify config.xml.
- 2. Or modify source tree directly \(\rightarrow\) /android source/ frameworks/base/core/res/res/values/config.xml Modify the following setting
- <bool name="config_automatic_brightness_available">false</bool>
 to
- <bool name="config_automatic_brightness_available">true</bool>
- 3. Enable auto-backlight in the following path: android setting -> Display -> Brightness -> enable Automatic brightness.





Modifications of PowerManagerService (For Reference)

If light sensor reading is correct but back light can't correctly, maybe this is because of wrong "mIsDocked" parameter setting. Please refer to PowerManagerService_revised.java".

Filename	Feature
PowerManagerService_orig.java	Original version of AOSP 2.3.X
PowerManagerService_revised.java	Remove "Docking" and
	"mHighestLightSensorValue"

