AW210XX Android Driver

DRIVER INFORMATION

Driver File	leds_aw210xx.c leds_aw210xx.h leds_aw210xx-reg.h
Support chip	AW21009,AW21012,AW21018
I²C device address	0x20/0x21/0x24/0x25 (Device address depend on AD PIN)
ADB debug	yes
Reference platform	QCOM, SDM660 (Android 9)

驱动移植

1. modify dtsi

Open /arch/arm/boot/dts/ *.dtsi file，add aw210xx configuration。（refer to aw210xx.dts）

```
&i2c_3 {
    status = "okay";
    aw210xx_led@20 {
        compatible = "awinic,aw210xx_led";
        reg = <0x20>;
        enable-gpio = <&tlmm 20 0>;
        led_current = <128>;
        pwm_freq = <0>;
        status = "okay";
        aw210xx,led {
            aw210xx,name = "aw210xx_led";
            aw210xx,imax = <1>;
            aw210xx,brightness = <128>;
            aw210xx,max_brightness = <255>;
        };
    };
};
```

2. Add driver file

Add leds_aw210xx.c, leds_aw210xx.h, leds-aw210xx_reg.h under driver/leds/, Note that in the source file, modify the inclusion of the header file to < >.

3. update Kconfig 和 Makefile

1) Modify Kconfig

```
config LEDS_AW210XX
```



```
    tristate "LED Support for AW210XX"
    depends on LEDS_CLASS && I2C
    help
      this option enables support for the AW210XXRGB LED connected
      through I2C. Say Y to enable support for the AW210XXLED
      light automatically.
```

2) Modify Makefile

```
#for AW210XX LED Driver
obj-$(CONFIG_LEDS_AW210XX)          += leds_aw210xx.o
```

4. Enable AW210XX build macro

Modify projetc_defconfig under /arch/arm/configs/projetc_defconfig
CONFIG_LEDS_ AW210XX=y

DEBUG INTERFACE

AW210XX Driver will create effect, rgbcolor, brightness, stdetect, opdetect and so on, file node， under android:/sys/bus/i2c/drivers/aw210xx_led/3-0020/leds/aw210xx_led/。So can user adb to config chip according to those node， and debug AW210XX lighteffect。

hwen

For the chip hardware control of aw210xx, the range of hwen is 0 / 1.
Node usage:
echo 0 > hwen （aw210xx hardware close）
echo 1 > hwen （aw210xx hardware enable）

reg

Used to read and write all registers of aw210xx, hexadecimal operation
Node usage：
Read reg： cat reg
Write reg： echo reg_addr reg_data > reg
Reference routine：
echo 0x01 0x02 > reg （write 0x02 to 0x01）

effect

Reference routine for aw210xx effect light effect file selection, hexadecimal operation
Node usage：
Read effect： cat effect （show current lighteffect）
Update effect： echo 1 > effect （select light effect）

rgbcolor

Configuration of single lamp RGB color for aw210xx PAG1, hexadecimal operation
Node usage：
Update rgb： echo rgb_addr rgb_data > allrgbcolor

echo 0x00 0xff0000 > rgbcolor （config group0 for red，RGB 为 0-11，colour with R|G|B）
echo 0x01 0xff0000 > rgbcolor （config rgroup1 for red，RGB 为 0-11，colour with R|G|B）

singleled

Used for single LED control test.
Node usage：
echo ledreg sl_data_ br_data > singleled
echo 0x00 0x33 0x55 > singleled （Configure the brightness of the 0th led, the SL register is configured with 0x33, and the br register is configured with 0x55）
echo 0x11 0x55 0x88 > singleled （Configure the brightness of the 17th led, SL register 0x55, Br register 0x88）

opdetect

Used for open circuit detection function control. When cat the node, the software will automatically configure the detection register, read the detection results, and restore the configuration after completion.
Node usage:
cat opdetect (Perform an open circuit test and display the results)

stdetect

Used for short circuit detection function control. When cat the node, the software will automatically configure the detection register, read the detection results, and restore the configuration after completion.
Node usage:
cat stdetect (Perform short circuit detection and display the results)