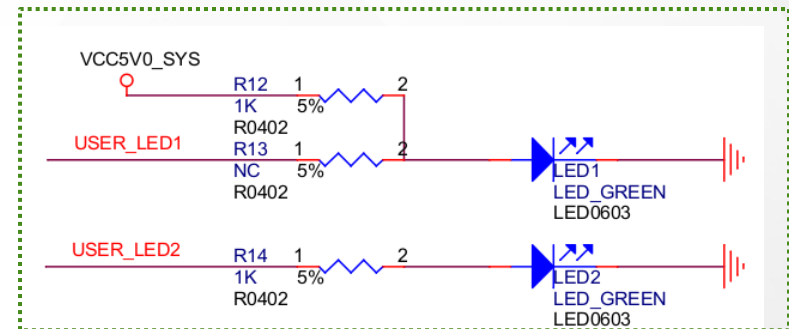
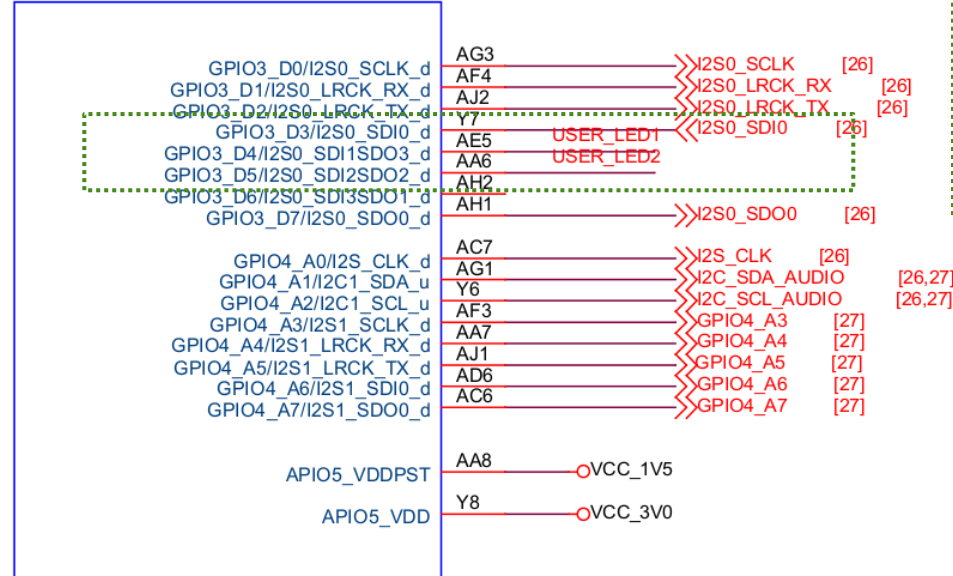


LED Drivers

LED Schematic

U1J RK3399 Note:RK3399 part J is 1.8V/3.0V mode



GPIO3_D4/I2S0_SDI1SDO3_d → LED1

GPIO3_D5/I2S0_SDI2SDO2_d → LED2

LED Subsystem

➤ Control LED convenient with SysFS

➤ For example

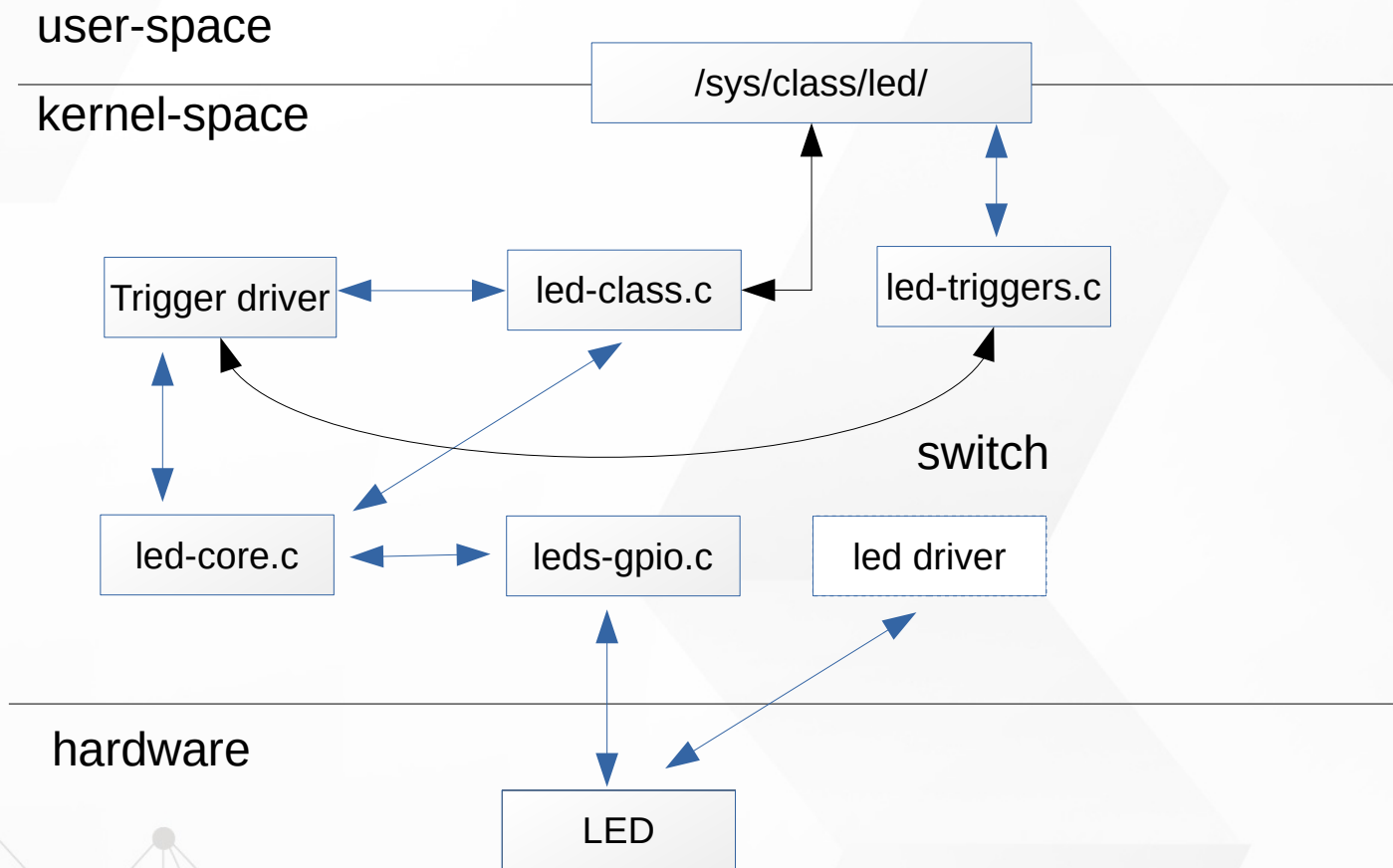
- `echo 1 > /sys/class/leds/user-led2/shot`

➤ Switch different LED trigger type in SysFS

➤ For example

- `echo "gpio" > /sys/class/leds/user-led2/trigger`
- `echo "1" > /sys/class/leds/user-led2/brightness`
- `echo "0" > /sys/class/leds/user-led2/brightness`

LED Subsystem



LED DTS

rk3399-rock-pi-4.dtsi

```
1  gpio-leds {  
2      compatible = "gpio-leds";  
3      status = "okay";  
4  
5      user-led1 {  
6          gpios = <&gpio3 28 GPIO_ACTIVE_HIGH>;  
7          linux,default-trigger = "heartbeat";  
8          default-state = "on";  
9      };  
10  
11     user-led2 {  
12         gpios = <&gpio3 29 GPIO_ACTIVE_HIGH>;  
13         linux,default-trigger = "heartbeat";  
14         default-state = "on";  
15     };  
16 };
```

SysFS Name

Trigger Type

```
# cat leds/status_led/trigger  
none rc-feedback kbd-scrolllock kbd-numlock kbd-capslock kbd-kana-lock kbd-  
shiftrlock kbd-ctrllock kbd-ctrlrlock mmc0 mmc1 timer oneshot [heartbeat]  
rfkill2
```

LED SysFS

```
root@rockpi4b:/sys/class/leds/user-led2# ls -l
```

```
brightness
device -> ../../../../gpio-leds
max_brightness
power
subsystem -> ../../../../../../class/leds
trigger
uevent
```

Check trigger type

```
root@rockpi4b:/sys/class/leds/user-led2# cat trigger
none rc-feedback kbd-scrolllock kbd-numlock kbd-capslock
kbd-kanalock kbd-shiftlock kbd-altgrlock kbd-ctrllock kbd-altlock
kbd-shiftllock kbd-shiftrlock kbd-ctrllllock kbd-ctrlrlock m
timer oneshot heartbeat backlight [gpio] cpu0 cpu1 cpu2 cpu
```

Switch trigger type

```
root@rockpi4b:/sys/class/leds/user-led2# echo heartbeat > trigger
```

```
root@rockpi4b:/sys/class/leds/user-led2# cat trigger
none rc-feedback kbd-scrolllock kbd-numlock kbd-capslock
kbd-kanalock kbd-shiftlock kbd-altgrlock kbd-ctrllock kbd-altlock
kbd-shiftllock kbd-shiftrlock kbd-ctrllllock kbd-ctrlrlock mmc0 mmc1
timer oneshot [heartbeat] backlight gpio| cpu0 cpu1 cpu2 cpu3 cpu4 cpu5
```

LED led-trigger.c - 1

Search
trigger driver

```
int led_trigger_register(struct led_trigger *trig)
{
    ...

    down_write(&triggers_list_lock);
    /* Make sure the trigger's name isn't already in use */
    list_for_each_entry(_trig, &trigger_list, next) {
        if (!strcmp(_trig->name, trig->name)) {
            up_write(&triggers_list_lock);
            return -EEXIST;
        }
    }
    /* Add to the list of led triggers */
    list_add_tail(&trig->next_trig, &trigger_list);
    up_write(&triggers_list_lock);

    /* Register with any LEDs that have this as a default trigger */
    down_read(&leds_list_lock);
    list_for_each_entry(led_cdev, &leds_list, node) {
        down_write(&led_cdev->trigger_lock);
        if (!led_cdev->trigger && led_cdev->default_trigger &&
            !strcmp(led_cdev->default_trigger, trig->name))
            led_trigger_set(led_cdev, trig);
        up_write(&led_cdev->trigger_lock);
    }
    up_read(&leds_list_lock);

    return 0;
}
```


LED led-trigger.c - 2

rk3399-rock-pi-4.dtsi

```
1  gpio-leds {  
2      compatible = "gpio-leds";  
3      status = "okay";  
4  
5      user-led1 {  
6          gpios = <&gpio3 28 GPIO_ACTIVE_HIGH>;  
7          linux,default-trigger = "heartbeat";  
8          default-state = "on";  
9      };  
10  
11     user-led2 {  
12         gpios = <&gpio3 29 GPIO_ACTIVE_HIGH>;  
13         linux,default-trigger = "heartbeat";  
14         default-state = "on";  
15     };  
16 };
```

SysFS Name

Ledtrig-heartbeat.c

```
# cat leds/status_led/trigger  
none rc-feedback kbd-scrolllock kbd-numlock kbd-capslock kbd-kana-lock kbd-  
shiftrlock kbd-ctrllock kbd-ctrlrlock mmc0 mmc1 timer oneshot [heartbeat]  
rfkill2
```