AW8646 Android Driver(MTK)

Version: V1.0

Data: 2022-09-20

Index

1. DRIVER DESCRIPTION

Source	aw8646.c aw8646.h
Products	aw8646

2. DRIVER PORTING GUIDE

2.1 AW8646 Porting Steps

2.1.1 DTS Configuration

```
// SPDX-License-Identifier: GPL-2.0
/ {
    aw8646_step {
        compatible = "awinic,aw8646_step";
        nen-gpio = <&tlmm 49 0>;
        dir-gpio = <&tlmm 50 0>;
        step-gpio = <&tlmm 51 0>;
        nsleep-gpio = <&tlmm 52 0>;
    };
};
```

2.1.2 Driver Configuration

The general platform driver has two compilation methods: integrated compilation and modular compilation. The corresponding compilation and configuration scheme is selected according to the platform loading mode.

Integrated Compilation

defconfig configuration:

```
CONFIG_AW8646_STEP = y
```

Create the aw8646 directory in the kernel/driver/misc/ directory and add the driver file:

aw8646.c,aw8646.h,Kconfig,Makefile

Contents of Kconfig in the aw8646 directory:

```
config AW8646_STEP
    tristate "Step motor driver for awinic AW8646"
```

Contents of Makefile in the aw8646 directory:

```
obj-$(CONFIG_AW8646_STEP)      += aw8646_step.o
aw8646_step-objs               := aw8646.o
```

Add follows to the kernel/driver/misc/Kconfig:

```
source "drivers/misc/aw8646/Kconfig"
```

Add follows to the kernel/driver/misc/Makefile:

```
obj-$( CONFIG_ AW8646_STEP) += aw8646/
```

Modular Compilation

defconfig configuration:

```
CONFIG _ AW8646_STEP = m
```

Create the aw8646 directory in the kernel/driver/misc/ directory and add the driver file:

aw8646.c,aw8646.h,Kconfig,Makefile

Contents of Kconfig in the aw8646 directory:

```
config AW8646_STEP
    tristate "Step motor driver for awinic AW8646"
```

Contents of Makefile in the aw8646 directory:

```
obj-$(CONFIG_AW8646_STEP)      += aw8646_step.o
aw8646_step-objs               := aw8646.o
```

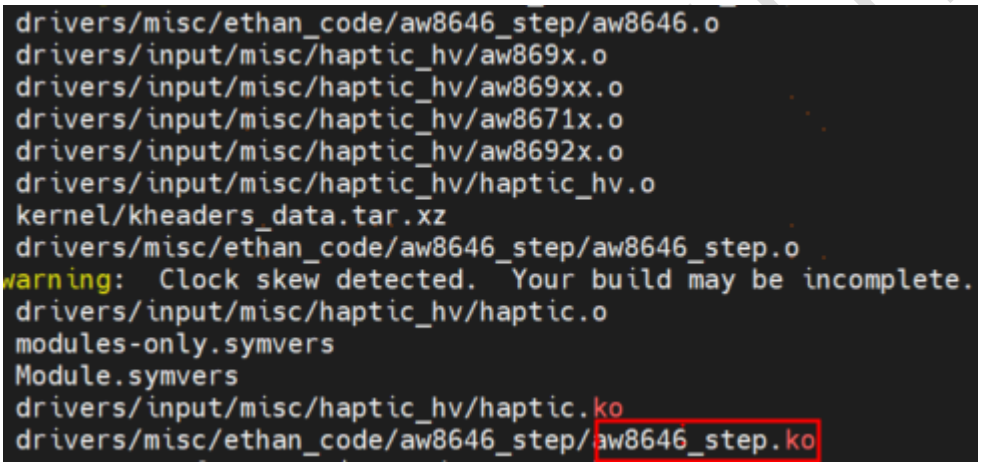

Add follows to the kernel/driver/misc/Kconfig:

```
source "drivers/misc/aw8646/Kconfig"
```

Add follows to the kernel/driver/misc/Makefile:

```
obj-$( CONFIG_AW8646_STEP) += aw8646/
```

After compiling the kernel, usually in the kernel/driver/misc/aw8646 directory to generate the aw8646.ko:



Upload the ko file to the specified directory, such as "/vendor/lib/modules/aw8646_step.ko", and then run the module load directive:

```
Insmod /vendor/lib/modules/aw8646_step.ko
```

The module unload instruction is:

```
rmmod aw8646_step.ko
```

2.2 Validation of driver migration

Verify whether the migration is successful through the following two steps:

2.2.1 Driver compilation succeeds

Integrated and modular compilation success:


```
drivers/misc/ethan_code/aw8646_step/aw8646.o
drivers/input/misc/haptic_hv/aw869x.o
drivers/input/misc/haptic_hv/aw869xx.o
drivers/input/misc/haptic_hv/aw8671x.o
drivers/input/misc/haptic_hv/aw8692x.o
drivers/input/misc/haptic_hv/haptic_hv.o
kernel/kheaders_data.tar.xz
drivers/misc/ethan_code/aw8646_step/aw8646_step.o
warning:  Clock skew detected.  Your build may be incomplete.
drivers/input/misc/haptic_hv/haptic.o
modules-only.symvers
Module.symvers
drivers/input/misc/haptic_hv/haptic.ko
drivers/misc/ethan_code/aw8646_step/aw8646_step.ko
```

2.2.2 Driver loading succeeded

1) Node generation succeeded:

```
hikey960:/sys/bus/platform/devices/aw8646_step/aw8646_step # ls
activate  direction  sleep  step_frequency
```

3. DEBUG INTERFACE

Aw8646 driver creates multiple device nodes for debugging. The node path is /sys/bus/platform/devices/aw8646_step/aw8646_step. You can use ADB to configure parameters and debug aw8646 play effect.

3.1 activate

Node Name	activate
Function	It is used to output the number of pulses and play, and stop playing when 0 is input
Usage	echo 100 > activate (Output 100 pulses) echo 0 > activate (Stop current output) cat activate (View current/last pulses)

3.2 direction

Node Name	direction
Function	Set the motor rotation direction (forward/reverse), which will only take effect when the next activation
Usage	echo 0 > direction (forward) echo 1 > direction (reverse) cat direction (Reading direction)

3.3 step_frequency

Node Name	step_frequency
Function	Set the output pulse frequency, which only takes effect when the next activation
Usage	echo 1000 > step_frequency (Output pulse frequency 1000hz) cat step_frequency (Reading output pulse frequency)

3.4 sleep

Node Name	sleep
Function	Set chip sleep mode
Usage	echo 1 > sleep (Stop the current output and enter the sleep mode) echo 0 > sleep (Exit sleep mode) cat sleep (Check whether it is in sleep mode)

3.5 steps

Node Name	steps
Function	Displays the number of steps actually completed during the last playback
Usage	cat sleep

