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## SPDIFRX Linux driver



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## 1 Article purpose

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This article introduces the SPDIFRX Linux<sup>®</sup> driver for the SPDIFRX internal peripheral.



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## 2 Short Description

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The SPDIFRX<sup>[1]</sup> Linux driver is an ASoC CPU DAI driver implemented in the Linux ALSA framework.



## 3 Configuration

### 3.1 Kernel Configuration

Activate the SPDIFRX<sup>[1]</sup> Linux driver in the kernel configuration using the Linux Menuconfig tool: [Menuconfig or how to configure kernel](#)

```
[*] Device Drivers
  [*] Sound card support
    [*] Advanced Linux Sound Architecture
      [*] ALSA for SoC audio support
        STMicroelectronics STM32 SOC audio support
          [*] STM32 S/PDIF receiver (SPDIFRX) support
```

### 3.2 Device tree

Refer to the [SPDIFRX device tree configuration](#) article when configuring the SPDIFRX Linux kernel driver.



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## 4 How to use

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The SPDIFRX driver is accessed from userland through an ALSA device. Refer to [ALSA overview](#) to see how to list and use ALSA devices.

The SPDIFRX driver exposes an alsa control, which allows to retrieve the IEC958 status bits from the input audio stream.



**The configuration of the SPDIFRX input pin in the device tree, may put some restrictions on the use of IEC958 control. Thus, in some configuration, the control can be used only when an audio stream is captured. Refer to the [SPDIFRX device tree configuration article](#), to find details about SPDIFRX configuration.**



## 5 How to debug

The `debugfs` and `procfs` file systems can be checked to get information about the SPDIFRX driver and the resources it uses. A none exhaustive list of these file system entries is provided below. Refer to [ALSA overview](#) to get more details about debugging tools.

- `debugfs` entries:
  - **asoc**: refer to [ALSA\\_overview#How\\_to\\_monitor](#)
  - **clk**: refer to [Clock\\_overview#How\\_to\\_monitor\\_with\\_debugfs](#) to get information on clocks.
  - **pinctrl**: refer to [Pinctrl\\_overview#How\\_to\\_monitor](#) to get information on pins.
  - **regmap**: allow to monitor SPDIFRX peripheral registers.

```
$ cat /sys/kernel/debug/regmap/xxx.audio-controller/registers
```

- `procfs` entries:
  - **asound**: refer to [ALSA\\_overview#How\\_to\\_debug](#)
  - **interrupts**: allow to check interrupts.

```
$ cat /proc/interrupts
```





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## 6 Source code location

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sound/soc/stm/stm32\_spdifrx.c : implements the SPDIFRX driver.



## 7 References

- 1.01.1 SPDIFRX internal peripheral

{{PublicationRequestId | 9234 | 2018-10-22 | BrunoB}}

ALSA System on Chip

Central processing unit

Digital Audio Interface

Advanced Linux sound architecture

Sony/Philips Digital Interface Format (Protocol (IEC-60958))

Process File System (See <https://en.wikipedia.org/wiki/Procfs> for more details)

Debug File System (See <https://en.wikipedia.org/wiki/Debugfs> for more details)

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