Amlogic Linux DVB Openlinux Release Note

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Content

Basic Information

1.1. Introduction

This document provides the DVB notes for Amlogic Linux BSP reference source code release running on Amlogic reference hardware. To obtain Amlogic Linux BSP reference source code, you will need to have an account to access Amlogic GIT source code repository.

Kernel version is 4.9.30:

```
commit db3fd4527ed32be44cbd8ffa6dd6a301c89d0d6d
Author: Greg Kroah-Hartman <gregkh@linuxfoundation.org>
Date:    Thu May 25 15:45:05 2017 +0200

    Linux 4.9.30
```

1.2. Chip Information

Item	S905D
CPU	Quad Cortex-A53
Max CPU Freq.	1.5G Hz
GPU	Penta Mali-450
Security	TrustZone & TVP
Memory	DDR3/4/3L, LPDDR2/3
Video decoding	4K2K H265&VP9
Video Encoding	1080P H264
HDMI-Tx	4K2K
Ethernet	10/100M
AV output	CVBS
IP License	Dolby,DTS

1.3. DVB Release Description

Code Path :
    Dvb core : \hardware\aml-4.9\amlogic\media_modules\drivers\stream_input\
    Dvb lib : vendor\amlogic\dvb\

1.4. How to Build Code

1.4.1. Kernel Toolchain

The cross-compile tool used for kernel 4.9 is : gcc-linaro-6.3.1-2017.02-x86_64_aarch64-linux-gnu/, and it should be pre-installed before kernel build.

```
aarch64-linux-gnu-gcc -v
gcc version 6.3.1 20170109 (Linaro GCC 6.3-2017.02)
```

1.4.2. Build

You can find corresponding Buildroot setenv config and kernel config for the reference hardware by doing the following:

1)   Mbox P230

```
. buildroot/build/setenv.sh
choose mesongxl_p230_kernel49_release config option
make
Note: Do not use make -jN here as Buildroot does not support top-level parallel
make. This does not mean that Buildroot does not support parallel compilation, but
just that it will handle this inside the Buildroot compilation system.

Uboot compile:
cd bootloader/uboot-2015-dev
./mk gxl_p230_v1
(uboot/fip/u-boot.bin for nand and EMMC, uboot/fip/u-boot.bin.sd.bin for making
bootcard)
```

The upgrade file aml_upgrade_package.img will be generated in output/[config_build_folder]/images/.

2)   Build DVB Code

Modify file "gxl_p230_2g.dts" in folder "kernel\aml-4.9\arch\arm64\boot\dts\amlogic", and add the DVB front-end

For example:

```
dvb {
    compatible = "amlogic, dvb";
    dev_name = "dvb";
    ts0 = "parallel";
    ts0_control = <0>;
    ts0_invert = <0>;
    interrupts = <0 23 1
    0 5 1
    0 53 1
    0 19 1
    0 25 1
    0 18 1
    0 24 1>;
    interrupt-names = "demux0_irq",
    "demux1_irq",
    "demux2_irq",
    "dvr0_irq",
    "dvr1_irq",
    "dvrfill0_fill",
    "dvrfill1_flush";
    pinctrl-names = "p_ts0", "s_ts0";
    pinctrl-0 = <&dvb_p_ts0_pins>;
    pinctrl-1 = <&dvb_s_ts0_pins>;
    clocks = <&clkc CLKID_DEMUX
    &clkc CLKID_ASYNC_FIFO
    &clkc CLKID_AHB_ARB0
    &clkc CLKID_HIU_IFACE>;
    clock-names = "demux", "asyncfifo", "ahbarb0", "uparsertop";
};
```

```
dvbfe {
    compatible = "amlogic, dvbfe";
    dev_name = "dvbfe";
    dtv_demod0 = "Avl6211";
    dtv_demod0_i2c_adap_id = <2>;
    dtv_demod0_i2c_addr = <0xc6>;
    dtv_demod0_reset_value = <0>;
    dtv_demod0_reset_gpio = <&gpio GPIODV_14 GPIO_ACTIVE_HIGH>;
    fe0_dtv_demod = <0>;
    fe0_ts = <0>;
    fe0_dev = <0>;
};
```

```
&i2c_b {
    status = "okay";
};
```

Modify file "Makefile" in folder "hardware\aml-4.9\amlogic\media_modules\drivers\stream_input", and add the path of demodulation driver. the demodulation driver is porting by yourself.

For example:

```
obj-y +=   box-frontend/avl6211/
# obj-y +=   box-frontend/atbm8881/
# obj-y +=   box-frontend/avl68xx/
```

After build the System Code :
1、$cd vender\amlogic\dvb
2、$source env.sh
3、$make TARGET=gxb

4、$make TARGET=gxb install

You can find dvb so in vendor\amlogic\dvb\lib64

1.5. How to Use

1) Add aml_hardware_dmx.ko、aml_hardware_fe.ko、xxx_demod.ko in buildroot/board/amlogic/mesongxl_p230/rootfs/etc/modules, make sure xxx_demod.ko insmod before aml_hardware_dmx.ko and aml_hardware_fe.ko.

2) Also you can run test program. (vendor\amlogic\dvb\test)