



## Amlogic Linux BSP Openlinux Release Note

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# Amlogic Openlinux Release Notes

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## 1. Basic Information

### 1.1. Introduction

This document provides the Openlinux 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.

#### 1.1.1. Kernel Version

Kernel version is 4.9.40:

```
commit efcfbf1d8bf756d1b58fe215bf4e419d176435b
Author: Greg Kroah-Hartman <gregkh@linuxfoundation.org>
Date: Thu Jul 27 15:08:24 2017 -0700
```

Linux 4.9.40

#### 1.1.2. List of Supported Drivers

- 1) Timer / Interrupts
- 2) Clocks
- 3) Pinmux/GPIO/GPIO IRQ
- 4) Remote
- 5) Hdmi
- 6) UART
- 7) USB Host
- 8) CPU DVFS
- 9) System Thermal (IPA)
- 10) CPU Hotplug
- 11) SD/SDHC/SDXC
- 12) eMMC
- 13) eFuse
- 14) CEC
- 15) SARADC/ADCKEY
- 16) I2C
- 17) PWM
- 18) SDIO WiFi/USB WiFi
- 19) Bluetooth
- 20) LED
- 21) Ethernet
- 22) SecureOS
- 23) SecureBoot

#### 1.1.3. List of Not Supported Drivers

- 1) SPI

## 1.2. Chip Information

Item	S905X	S905D
CPU	Quad Cortex-A53	Quad Cortex-A53
Max CPU Freq.	1.5G Hz	1.5G Hz

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<b>GPU</b>	Penta Mali-450	Penta Mali-450
<b>Security</b>	TrustZone & TVP	TrustZone & TVP
<b>Memory</b>	DDR3/4/3L, LPDDR2/3	DDR3/4/3L, LPDDR2/3
<b>Video decoding</b>	4K2K H265&VP9	4K2K H265&VP9
<b>Video Encoding</b>	1080P H264	1080P H264
<b>HDMI-Tx</b>	4K2K	4K2K
<b>Ethernet</b>	10/100M	10/100M
<b>AV output</b>	CVBS	CVBS
<b>IP License</b>	Dolby,DTS	Dolby,DTS

## 1.3. How to Get Code

### 1) repo command

You can download Linux BSP source code by running the following repo commands:

- **China openlinux server**

```
$ cd ~/<your-repo-dir>/
$ repo init -u ssh://git@openlinux.amlogic.com/buildroot/platform/manifest.git
$ repo init -m buildroot-openlinux-20170814.xml
$ repo sync
```

- **Overseas openlinux server**

```
$ cd ~/<your-repo-dir>/
$ repo init -u ssh://git@openlinux2.amlogic.com/buildroot/platform/manifest.git
$ repo init -m buildroot-openlinux-20170814.xml
$ repo sync
```

### 2) download tar package

You can download the tar package freely, but it has no git info:

```
$ wget -c
http://openlinux.amlogic.com:8000/download/ARM/filesystem/Linux_BSP/buildro
ot_openlinux_kernel_4.9_wayland_20170814.tar.gz
$ tar xvzf buildroot_openlinux_kernel_4.9_wayland_20170814.tar.gz
```

## 1.4. Reference Platform

- **P212(S905X)**  
EMMC,WIFI AP6335 ,DDR 2GB
- **P231(S905D)**  
EMMC,WIFI AP6255 or QCM9377,DDR3 1GB&DDR4 2GB Auto-detect

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## 1.5. How to Build Code

### 1.5.1. 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)
```

### 1.5.2. Build

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

#### 1) Mbox P212

```
. buildroot/build/setenv.sh
choose mesongxl_p212_32_release or mesongxl_p212_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_p212_v1
(uboot/fip/u-boot.bin for nand and EMMC, uboot/fip/u-boot.bin.sd.bin for making bootcard)
```

#### 2) Mbox P231

```
. buildroot/build/setenv.sh
choose mesongxl_p231_32_release or mesongxl_p231_release config option
make
```

```
Uboot compile:
cd bootloader/uboot-2015-dev
./mk gxl_p231_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/.

## 1.6. How to Upgrade

- For Windows: Upgrade with USB burn tool.
- For Linux: Upgrade with bash script aml\_update\_whole\_package.sh. Make sure usb driver has been installed correctly.
  - 1) plugin power cable, at the same time, hold down the POWER key.
  - 2) plugin the usb cable within 5 seconds.
  - 3) cd the script directory.
  - 4) ./aml\_update\_whole\_package.sh path/to/aml\_upgrade\_package.img.

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## 2. Test Report

### 2.1. Stability test

Test Platform	Test Case	Total test time	Test Result	comment
P212#096	dvfs stress	40H	Pass	
P212#017	dvfs stress	60H	Pass	
P231#01	dvfs stress	64H	Pass	
P212#096	video	60H	Fail	picture freeze
P231#01	video	15H	Pass	
P231#07	video	15H	Pass	
P212#166	video	12H	Pass	
P212#096	EMMC pressure	10000 times	Pass	
P212#096	EMMC stability	1000 times	Pass	
P212#096	Auto reboot	3000 times	Pass	
P231#01	Auto reboot	3000 times	Pass	
P231#151	Auto reboot	3000 times	Pass	
P212#97	Auto reboot	3000 times	Pass	

### 2.2. Video Format Test Report For GSTplayer

Extension	Codec Detail	Tested Resolution	S905X	
.3g2	H263	704x576	Support	
.3gp	MPEG-4 Visual	640x480	Support	
	H263	704x576	Support	
	MPEG-4	320x240	Support	
.asf	WMV3	320x240	Support	
.avi	AVC	1920x1080	Support	
	DivX5	1280x720	Support	
	M-JPEG	1024x576	Support	
	MS MPEG-4 V1	352x218	Support	
	RealMagic	720x480	Support	
	MPEG-4	720x576	Support	
	h264	1920x1080	Support	
	FF mpeg			
	MPEG4	640x480	Support	
	XVID	640x480	Support	
	S-Mpeg 4 v3	720x400	Support	
	DivX3	720x576	Support	
DivX4	1920x1080	Support		
.dat	MPEG-1	352x288	Support	
.divx	DivX5	1280x720	Support	
.f4v	AVC(H264)	1280x720	Support	
.flv	Sorenson Spark	1920x1080	Support	
.mp4	AVC(H264)	1920x1080	Support	
	HEVC(H265)	1920x1080	Support	
	4K HEVC(4K H265)	4096x2304	Support	
	H263	176x144	Support	
	MPEG-4 Visual	640x480	Support	
.m2ts	AVC	1920x1080	Support	

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.m2v	MPEG-2	480x576	Support
.m4v	AVC	1280x720	Support
.mkv	WMV3	1280x720	Support
	MPEG-4 Visual	1920x1080	Support
	AVC	1920x1080	Support
	4K HEVC(4K H265)	3840x2160	Support
.mov	MPEG-4 Visual	1280x720	Support
	mjpa	640x480	Support
	H263	320x240	Support
	M-JPEG	640x480	Support
	AVC	1920x1080	Support
	MPEG-4 Visual	640x480	Support
.mpeg	MPEG-2	1920x1080	Support
	MPEG-1	720x576	Support
.mts	AVC	1440x1080	Support
.ogm	DivX5	640x336	Support
	XVID	640x480	Support
.tp	MPEG-2	1920x1088	Support
.ts	HEVC(H265)	1920x1080	Support
	4K HEVC(4K H265)	4096x2304	Support
	MPEG-1	1920x1080	Support
	AVC	1920x1080	Support
	MPEG-2	1920x1080	Support
.vob	MPEG-2	720x576	Support
.h265	HEVC(H265)	1920x1080	Support
4K	AVC(H264)	4096x2304	Support
	HEVC(H265)	4096x2304	Support

### 2.3.Video Format Test Report For Kplayer

Extension	Codec Detail	Tested Resolution	S905X
.3g2	H263	704x576	Support
.3gp	MPEG-4 Visual	640x480	Support
	H263	704x576	Support
	MPEG-4	320x240	Support
.asf	WMV3	320x240	Support
	AVC	1920x1080	Support
.avi	DivX5	1280x720	Support
	M-JPEG	1024x576	Support
	MS MPEG-4 V1	352x218	Support
	RealMagic	720x480	Support
	MPEG-4	720x576	Support
	h264	1920x1080	Support
	FF mpeg MPEG4	640x480	Support
	XVID	640x480	Support
	S-Mpeg 4 v3	720x400	Support
	DivX3	720x576	Support
	DivX4	1920x1080	Support

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.dat	MPEG-1	352x288	Support
.divx	DivX5	1280x720	Support
.f4v	AVC(H264)	1280x720	Support
.flv	Sorenson Spark	1920x1080	Support
.mp4	AVC(H264)	1920x1080	Support
	HEVC(H265)	1920x1080	Support
	4K HEVC(4K H265)	4096x2304	Support
	H263	176x144	Support
	MPEG-4 Visual	640x480	Support
.m2ts	AVC	1920x1080	Support
	VC-1	1920x1080	Support
.m2v	MPEG-2	480x576	Support
.m4v	AVC	1280x720	Support
.mkv	WMV3	1280x720	Support
	MPEG-4 Visual	1920x1080	Support
	AVC	1920x1080	Support
	4K HEVC(4K H265)	3840x2160	Support
.mov	MPEG-4 Visual	1280x720	Support
	mjpa	640x480	Support
	H263	320x240	Support
	M-JPEG	640x480	Support
	AVC	1920x1080	Support
	MPEG-4 Visual	640x480	Support
.mpeg	MPEG-2	1920x1080	Support
	VC-1	1920x1080	Support
	MPEG-1	720x576	Support
	WMV1	320x240	Support
.mts	AVC	1440x1080	Support
.ogm	DivX5	640x336	Support
	XVID	640x480	Support
.PMP	H264	480x272	Support
.rmvb	RealVideo4	1920x1080	Support
.tp	MPEG-2	1920x1088	Support
.ts	HEVC(H265)	1920x1080	Support
	4K HEVC(4K H265)	4096x2304	Support
	MPEG-1	1920x1080	Support
	AVC	1920x1080	Support
	AVS	720x576	Support
	AVS+	720x576	Support
	MPEG-2	1920x1080	Support
.vob	MPEG-2	720x576	Support
.mvc	mvc	1920x1080	Support
.h265	HEVC(H265)	1920x1080	Support
4K	AVC(H264)	4096x2304	Support
	HEVC(H265)	4096x2304	Support



### 3. Recent Changes

- 1) Porting Wayland 1.14 and Weston 3.0.
- 2) Porting Chromium 53.0 and WPE browser.

### 4. Known Issue

- 1) Chromium and WPE stability need improve.
- 2) Gstreamer player cannot play audio files immediately.
- 3) Compatibility of gstreamer need improve.
- 4) TrueHD audio does not support.
- 5) Picture has not been tested.