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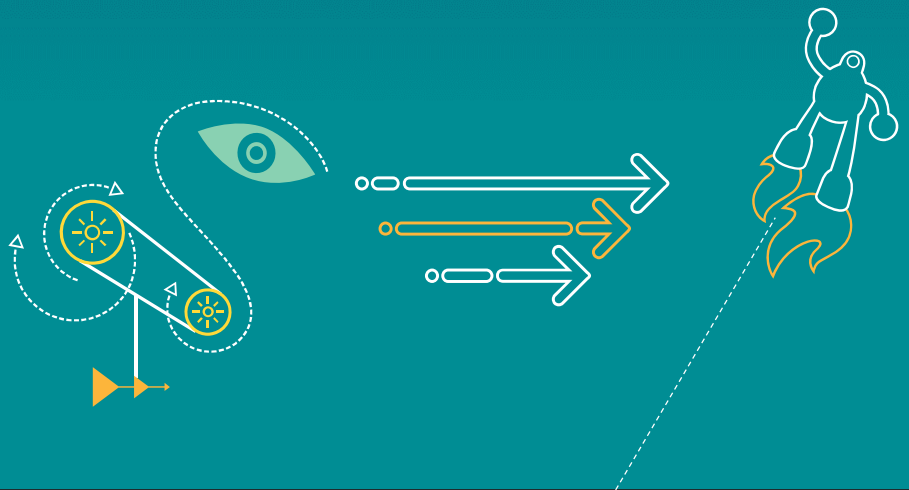

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# Revision History

| Revision | Date | Description |
|---|---|---|
| A | Apr. 2016 | Initial release |

**Note:** There is no Rev. I, O, Q, S, X, or Z per Mil. standards.


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# 内容

- Audio
  - Important docs update
  - Audio common issues
- Video
  - 如何Enable Wi-Fi Display的HDCP功能
  - 整合Wi-Fi Display的HDCP功能以及理解HDCP连接原理
  - 通过Log Debug HDCP 功能


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# Audio


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# Important docs update

- Docs
- Solutions
  - 00031389 - How to enable Dolby DS1 feature on MSM8996 M release
  - 00031403 - Example code to enable External echo reference on Quinary MI2S interface
  - 00031406 - Reference DTSI changes to enable only Quinary MI2S Tx/Rx on MSM8937
  - 00031407 - Reference DTSI changes to enable only Quaternary MI2S Tx/Rx on MSM8937
  - 00031408 - Reference DTSI changes to enable only Quinary and Quaternary MI2S Tx/Rx on MSM8937
  - 00031422 - MSM8953 Linux Audio Documents
  - 00031423 - MSM8953.LA.1.0 - Release schedule
  - 00031424 - MSM8953 LA.1.0 Audio POR specification - Audio features


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# Audio common issues（1）

- 描述：standby current is more higher after using QUAT_MI2S
- 复现步骤和现象：
  - 1, tinymix打开QUAT_MI2S
  - 2, tinyplay播放一个wav文件
  - 3, tinyplay关闭QUAT_MI2S
  - 4, 深入睡眠，测量待机电流
  - 结果：待机电流比平常高出30mA左右
- 基线： MSM8952、MSM8956
- CR： 992618
- 代码修改：
  - 有正式的patch，目前在codeaurora上还看不到，QUAT_MI2S的修改如下页，其它路I2S的修改类似。


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# Audio common issues ( 1 )

```
@@ -1542,6 +1542,7 @@ static int quat_mi2s_clk_ctl(struct snd_pcm_substream *substream, bool enable)

                if (enable) {
                        if (substream->stream == SNDRV_PCM_STREAM_PLAYBACK) {
+                               mi2s_rx_clk.clk_val2 = Q6AFE_LPASS_OSR_CLK_12_P288_MHZ;
                                if (mi2s_rx_bit_format == SNDRV_PCM_FORMAT_S24_LE)
                                        mi2s_rx_clk.clk_val1 =
                                                Q6AFE_LPASS_IBIT_CLK_3_P072_MHZ;
@@ -1553,6 +1554,7 @@ static int quat_mi2s_clk_ctl(struct snd_pcm_substream *substream, bool enable)
                                                &mi2s_rx_clk);
                        } else if (substream->stream == SNDRV_PCM_STREAM_CAPTURE) {
                                mi2s_tx_clk.clk_val1 = Q6AFE_LPASS_IBIT_CLK_1_P536_MHZ;
+                               mi2s_tx_clk.clk_val2 = Q6AFE_LPASS_OSR_CLK_12_P288_MHZ;
                                ret = afe_set_lpass_clock(
                                                AFE_PORT_ID_QUATERNARY_MI2S_TX,
                                                &mi2s_tx_clk);
@@ -1566,11 +1568,13 @@ static int quat_mi2s_clk_ctl(struct snd_pcm_substream *substream, bool enable)
                } else {
                        if (substream->stream == SNDRV_PCM_STREAM_PLAYBACK) {
                                mi2s_rx_clk.clk_val1 = Q6AFE_LPASS_IBIT_CLK_DISABLE;
+                               mi2s_rx_clk.clk_val2 = Q6AFE_LPASS_OSR_CLK_DISABLE;
                                ret = afe_set_lpass_clock(
                                                AFE_PORT_ID_QUATERNARY_MI2S_RX,
                                                &mi2s_rx_clk);
                        } else if (substream->stream == SNDRV_PCM_STREAM_CAPTURE) {
                                mi2s_tx_clk.clk_val1 = Q6AFE_LPASS_IBIT_CLK_DISABLE;
+                               mi2s_tx_clk.clk_val2 = Q6AFE_LPASS_OSR_CLK_DISABLE;
                                ret = afe_set_lpass_clock(
                                                AFE_PORT_ID_QUATERNARY_MI2S_TX,
                                                &mi2s_tx_clk);
```


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# Audio common issues（2）

- 描述：Media volume sound was cutting off
- 复现步骤和现象：
  - Settings->Sound&notification->Media volume
  - Change the Media volume with seek bar, there is no sound.
- 基线： M release
- CR： 982822
- 代码修改：
  - https://us.codeaurora.org/cgit/quic/la/platform/frameworks/av/commit/?id=2bdf8e4f609606fcc6c9d110131484a817f107a6


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# Audio common issues（3）

- 描述：wechat TX no sound after voice call
- 复现步骤和现象：
  - 1. Connect WIFI, install Wechat
  - 2. DUT make a Wechat voice call. Run Wechat voice call in background.
  - 3. DUT make a 10086 call during Wechat call.
  - 4. After some second 10086 call, hang up the 10086 call
  - 5. Check the Wechat call, DUT could hear far side, but far side can’t hear DUT
- 基线： MSM8952/76
- CR： 984904
- 代码修改：
  - https://www.codeaurora.org/cgit/quic/la/platform/vendor/qcom/tellurium_64/commit/?id=e4264830eb5a2d8537970c294b75f461b6a80808


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# Audio common issues（4）

- 描述：TX mute when make a voice call during wechat call
- 复现步骤和现象：
  - 1. Connect WIFI, install Wechat
  - 2. DUT make a Wechat voice call. Run Wechat voice call in background.
  - 3. DUT make a voice call during Wechat call.
  - Result: Both voice call TX and Wechat call TX is muted, DUT RX is fine
- 基线： M release
- CR： 988594
- 代码修改：
  - diff --git a/hal/audio_hw.c b/hal/audio_hw.c
  - @@ -733,7 +733,7 @@ static void check_and_route_capture_usecases(struct audio_device *adev,
  - usecase->in_snd_device != snd_device &&
  - ((uc_info->devices & AUDIO_DEVICE_OUT_ALL_CODEC_BACKEND) &&
  - (((usecase->devices & ~AUDIO_DEVICE_BIT_IN) & AUDIO_DEVICE_IN_ALL_CODEC_BACKEND) ||
  - -  (usecase->type == VOICE_CALL))) &&
  - +  (usecase->type == VOICE_CALL) **|| (usecase->type == VOIP_CALL)**)) &&
  - (usecase->id != USECASE_AUDIO_SPKR_CALIB_TX)) {
  - ALOGV("%s: Usecase (%s) is active on (%s) - disabling ..",
  - __func__, use_case_table[usecase->id],


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# Audio common issues（5）

- 描述：FM no sound when disable touch tone
- 复现步骤和现象：
  - 1 Disable all touch tone
  - 2 Insert Headphone
  - 3 open QCOM FM APK and play FM
  - FM no sound; if enable touch tone, FM play back is OK.
- 基线： M release
- CR： 957807
- 代码修改：
  - https://us.codeaurora.org/cgit/quic/la/platform/hardware/qcom/audio/commit/?id=7fcac44dc7593c674a9820914c79f729c388b3aa


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# Video


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# 如何Enable Wi-Fi Display的HDCP功能

如果WFD Source需要传输DRM content protection到WFD Sink端，Source和Sink端必须同时支持HDCP 2.x。

- 如何在WFD Source端打开HDCP功能

把/system/etc/ 下面的wfdconfig.xml 用adb pull出来。
并做如下修改：

```
<ContentProtection>
      <Valid>1</Valid>
      <Version>WFD_HDCP_2_1</Version>
 </ContentProtection>
```

最后把wfdconfig.xml push回到/system/etc目录下

- 上面只是默认打开Video的加密功能，对于Audio要在wfdconfig.xml里面打开下面的config。

```
<ContentProtection>
      <Valid>1</Valid>
      <Version>WFD_HDCP_2_1</Version>
            <EncryptAudio>1</EncryptAudio> <!-- Valid values 0 / 1 to indicate Audio encryption or not -->
 </ContentProtection>
```

关于HDCP的Enable也可以参考solution 28468


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# 整合Wi-Fi Display的HDCP功能以及理解HDCP连接原理

- 整合HDCP功能

除了在wfdcofig.xml 里enable HDCP, 还需要一个HDCP的Library,通常是由第三方Santa Security
（https://www.sansasecurity.com）或者ARM提供，这两家也是QTI 建议的第三方。
所以，联系第三方拿到Library，包括License等事宜，其他与HDCP集成相关的代码，高通release版本默认都已经包含。

- HDCP连接原理

如果Source和Sink都支持HDCP2.x，HDCP Session将会在RTSP session之前建立连接，如果HDCP Session建立失败，默认仍然可以建立RTSP Session，也就是HDCP没有建立成功的情况下，WFD功能仍然可以使用，这种情况下Source端将只能传输非DRM content protection到Sink端。

另外，在HDCP Session失败的情况下，也可以强制终止RTSP Session，从而WFD功能不可用，此禁止可以在wfdconfig.xml里添加如下config.

<EnforceLinkHDCP>1</EnforceLinkHDCP>

默认这个config在wfdconfig.xml里没有，需要手动添加。


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# 通过Log Debug HDCP 功能

- 如下log说明要启动HDCP的Session

01-18 17:42:12.717 2064 2743 D RTSPSession_CPP: RTSP setupCallback: negotiated capability: HDCP port 9876, version 2

- 如下log说明HDCP Session connection 成功

01-18 17:42:12.937 2064 2745 E MM_OSAL: WFD_HdcpSessionConnect (): SUCCESS!!

- 如下log说明数据被加密成功

01-18 17:42:13.828 2064 2757 E MM_OSAL: WFD_HdcpDataEncrypt-params = 0, 22210

01-18 17:42:13.828 2064 2757 E MM_OSAL: WFD_HdcpDataEncrypt (): ErrorStatus (0)

- 如下log可以确认HDCP的版本

MMCapability_CPP( 2593): wfd_content_protection: HDCP2.2 port=6789


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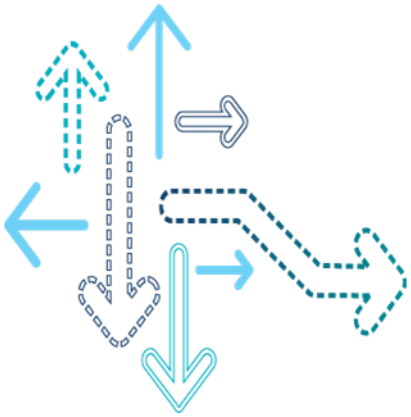

# Questions?

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