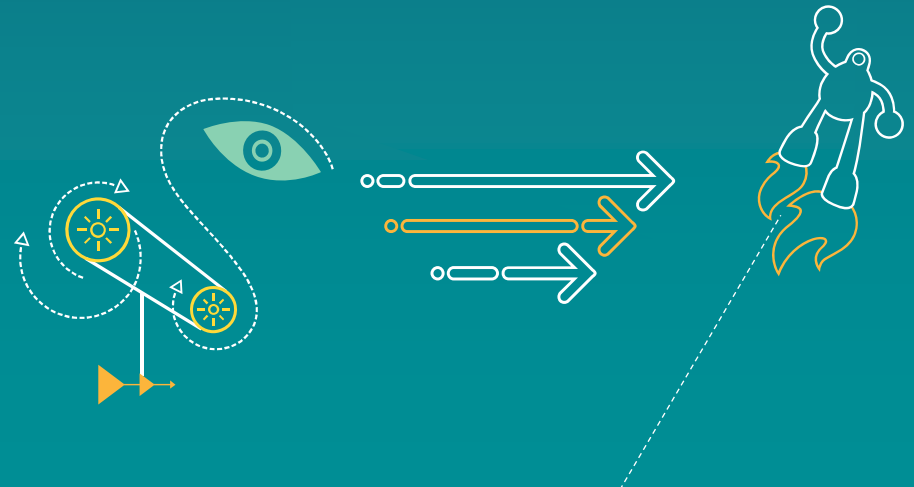

高通多媒体技术期刊 20140625



Qualcomm Technologies, Inc.

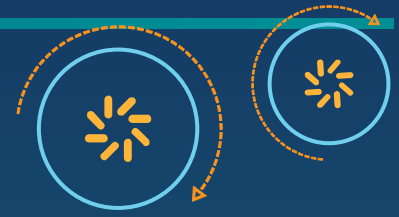


Revision History

Revision	Date	Description
A	June 2014	Initial release

Contents

- Key Update (MUST Read)
- Camera
- Audio



Key Update (MUST Read)

M8916 Camera 工作流程介绍

- 为更好的支持客户项目Camera Sensor Bring up and Tuning, 高通Camera团队制定了严格的Camera 工作流程来帮助客户, [80-NL239-36 Camera Project Workflow](#) 详细介绍了项目的开发步骤, 以及在各个关键节点Camera 团队给客户的支持情况, 请你尽早阅读
- 下面的Solutions对Camera 工作流程有了进一步阐述
 - [00028522](#): Release schedule for MSM8916.LA.1.0
 - [00028512](#): Linux Camera Enablement Plan Overview
 - [00028483](#): List of MSM8916 Linux Camera Features
 - [00028471](#): Camera Module Selection and IQ Timeline Determination Guide
 - [00028472](#): Accessing PVL Camera Drivers from Global Components Database
 - [00028473](#): Camera Hardware Bring-up Guidelines
 - [00028470](#) Information about all camera software documents and training videos
 - [00028513](#): Information about all camera Image Quality tuning documents
- [80-NP432-1 MSM8916 LA Camera Announcement](#) 对Camera Tuning工作流程有进一步说明

M8916 Audio 工作流程介绍

- 为更好的支持客户项目Audio Bring up and Tuning, 高通Audio团队制定了严格的Audio工作流程来帮助客户, [80-NN912-1 MSM8916 Audio Project Workflow](#) 详细介绍了项目的开发步骤, 以及在各个关键节点Audio团队给客户的支持情况, 请你尽早阅读
- 下面的Solutions对Audio工作流程有了进一步阐述
 - [00028542 : MSM8916.LA.1.0 - QTI Project LifeCycle Stages](#)
 - [00028531 : MSM8916.LA.1.0 - Audio Feature Enablement Plan](#)
 - [00028541 : MSM8916.LA.1.0 - Release Schedule](#)
 - [00028605 : Linux Audio Enablement Plan](#)
 - [00028530 : MSM8916.LA.10 - Audio Feature Plan Of Record \(POR\)](#)
 - [00028635 : Audio Feature Description](#)
 - [00028532 : MSM8916.LA.10 - Customer Engagement Model, Migration Plan, Document Set](#)
 - [00028533 : MSM8916.LA.10 - Customer Project Requirements](#)
 - [00028644 : Tuning Milestone Discussion](#)
 - [00028534 : Audio Feature Request Questionnaire](#)
 - [00028640 : MSM8916.LA.1.0 - Customer Hardware Design Discussion](#)
 - [00028639 : MSM8916.LA.1.0 - Audio System Performance Projection](#)
 - [00028638 : MSM8916.LA.1.0 - KPIs and memory requirement](#)
 - [00028637 : How Audio and Voice KPIs are measured ?](#)
- [80-NN912-2 MSM8916 Audio Document Tree](#) 包含所有M8916 Audio相关的文档

SWE Browser for CMCC

- QRD release (QMSS)将基于SWE Browser 去支持中国移动CMCC要求的Browser features，而不是采用缺省的Android Browser， 但是当前的软件版本中集成的是缺省的Android Browser，因此客户需要到CAF 网站上去下载和编译相应代码生成apk，并集成到当前版本中。未来在QMSS版本（8916 PL1.1, 8926 PL2.1）中将使用SWE作为默认浏览器。
- CAF Link: <https://www.codeaurora.org/xwiki/bin/Chromium+for+Snapdragon/Build>
- [80-NN815-1 KK Platform Carrier New Change Notes](#) [80-NN732-1 Snapdragon Web Engine Overview](#) 对集成SWE Browser的步骤做了详细的描述，请你仔细阅读
- SWE Browser 集成的基本步骤包括，
 1. Copy the appropriate .gclient file for relevant branch mentioned
 2. Sync the source code
 3. Build and Integration
- 上述的工作对通过CMCC认证是必须的，请你尽早阅读上述文档和链接，如果还有问题，请第一时间通过CASE或者TAM寻求高通帮助。

Audio Known Issue — 睡眠模式下音乐播放自动停止

- 平台：MSM8926, PL 2.0/PL2.1, KK 版本
- 问题描述：睡眠模式下的offload playback的音乐播放, 音乐停止没有声音
 - 现象 — 音频offload playback模式下, 关闭屏幕, 断开USB连接让系统可以进入睡眠模式, 音乐播放会自动停止
- 原因：在offload playback模式中, 发现4个POPP features被使能了 – Resampler, Volume, virtualizer, BassBoost, 但是ADSP没有对其请求更多的AXI总线带宽导致AFE错误
- CR : 678496
- 解决办法：使用ADSP image版本ADSP.BF.2.2-00**570**-M8626AAAAAAZL-1 或者更新的版本; 如果是旧点的版本（比如ADSP 564版本），客户可以创建一个case给高通要求SBA

在KK Release用GPU加速RenderScript (RS)

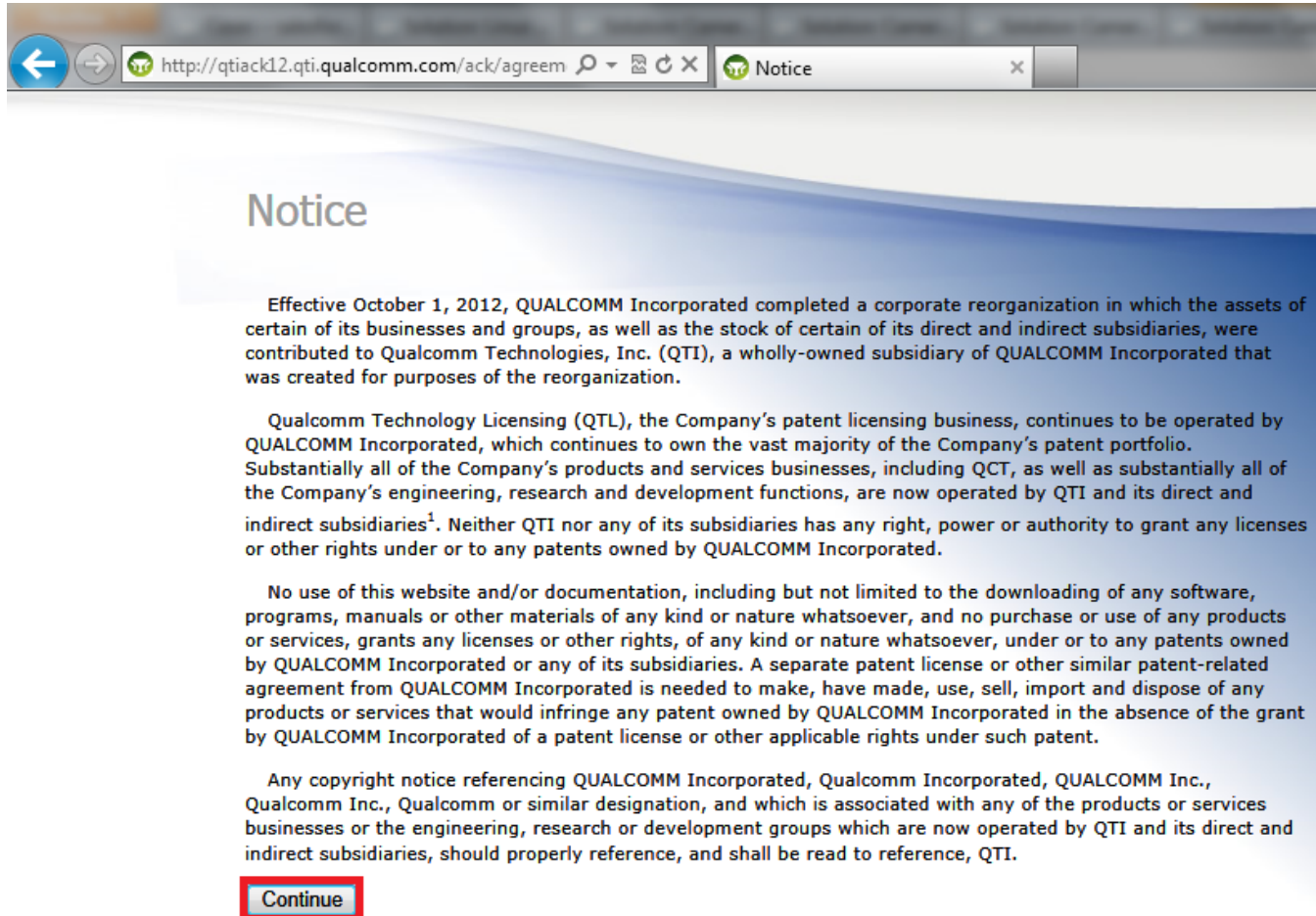
- 缺省情况下，如果RenderScript (RS)没有采用GPU加速，很多基于RenderScript (RS) 的应用程序都有很大的性能影响，同时，一些流行的性能测试Benchmarks，比如CompuBenchRS，跑出来的性能也很差。所以，从KK Release后，用GPU加速RenderScript (RS)是相当的重要
- 用GPU加速RenderScript (RS)
In device/qcom/<target>/BoardConfig.mk:
Enables Adreno RS driver 5
OVERRIDE_RS_DRIVER := libRSDriver_adreno.so 6
然后重新编译frameworks/rs 目录下的源文件
- 检查/system/vendor/lib 目录，确保下面三个库文件：
libRSDriver_adreno.so
librs_adreno.so
librs_adreno_sha1.so
- 适用于8x10/12，8926，8916平台，KK release
- 参考 [80-NN895-1 A Enabling GPU-Accelerated RenderScript](#)



Camera

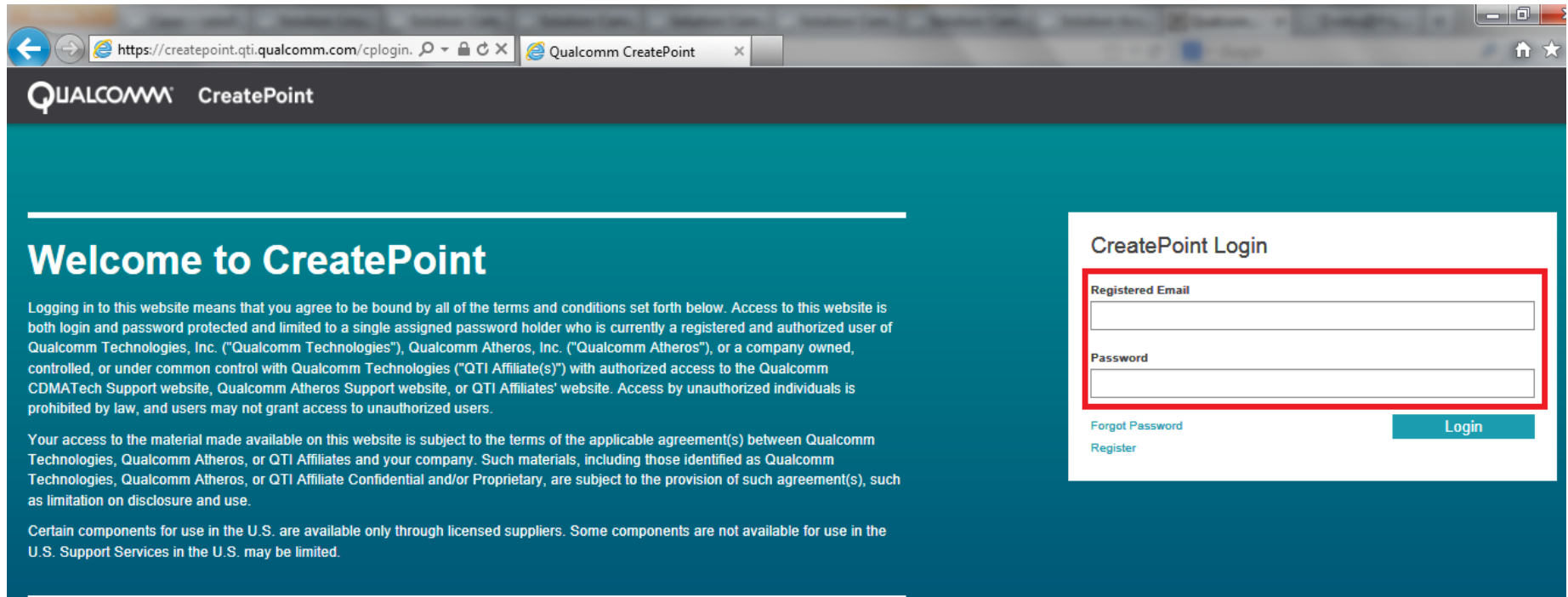
如何在GCDB上查找Camera驱动 (Solution:[00028472](#))

- GCDB 是Global Components Database的缩写
- GCDB 网址: <https://createpoint.qti.qualcomm.com>
- 打开GCDB网址, 你将看到下面公告页面, 点击”Continue”进入主界面



如何在GCDB上查找Camera驱动 — 续一

- 进入下面登录界面后，使用你的GCDB帐号登录



QUALCOMM CreatePoint

Welcome to CreatePoint

Logging in to this website means that you agree to be bound by all of the terms and conditions set forth below. Access to this website is both login and password protected and limited to a single assigned password holder who is currently a registered and authorized user of Qualcomm Technologies, Inc. ("Qualcomm Technologies"), Qualcomm Atheros, Inc. ("Qualcomm Atheros"), or a company owned, controlled, or under common control with Qualcomm Technologies ("QTI Affiliate(s)") with authorized access to the Qualcomm CDMA Tech Support website, Qualcomm Atheros Support website, or QTI Affiliates' website. Access by unauthorized individuals is prohibited by law, and users may not grant access to unauthorized users.

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Certain components for use in the U.S. are available only through licensed suppliers. Some components are not available for use in the U.S. Support Services in the U.S. may be limited.

CreatePoint Login

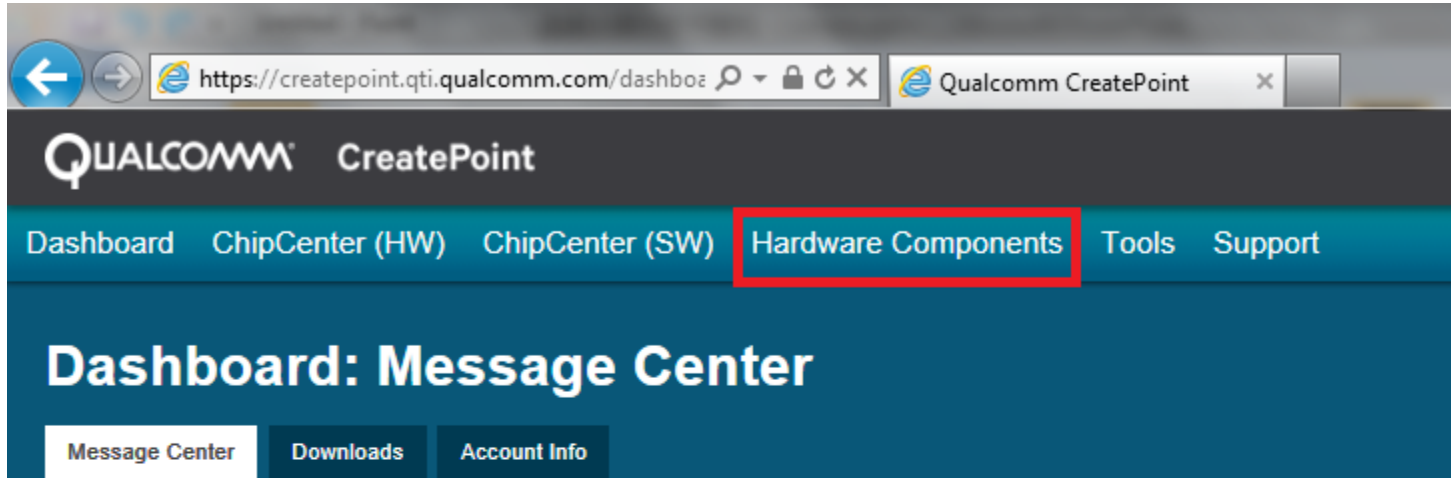
Registered Email

Password

[Forgot Password](#) [Register](#) [Login](#)

如何在GCDB上查找Camera驱动 — 续二

- 登录后点击“Hardware Components”



Message Center

Welcome to Qualcomm CreatePoint!

Qualcomm CreatePoint User,

We continue to make additions to CreatePoint and recommend you look around and check out what's available.

New to CreatePoint:

- The ChipCenter (SW) section now provides a new Release History table for easy-to-access table showing all fixed CRs (Ch tag, type, fix status and subsystem).
- ChipCode now supports Service Distributions for quick access to software code for debug code and proposed fixes outside
- ChipCode's repositories now have more controls in the COMMITS > COMPARE tab when comparing releases. New function disabled in the list of changed files, files can be filtered by name and selected individually for inclusion in the download.

Other favorite destinations:

- The Tools section provides access to software tools such as QPST and QXDM. The Tools section combines all tools-related

如何在GCDB上查找Camera驱动 — 续三

- 在Select Component Type 下拉框中选择 Camera Components
- 在Filter Results里输入搜索关键字，如果希望列出当前MSM8916上已经验证的Camera模组，请输入MSM8916。类似请输入MSM8939搜索当前MSM8939平台上已验证的Camera模组。当然你可以输入Sensor型号等其他关键字进行搜索
- 如果某一个模组的状态（Status）是In Release或者是PVL， 点击Name进入General Component Details可得到驱动下载链接

The screenshot shows the Qualcomm CreatePoint web interface. The browser address bar displays <https://createpoint.qti.qualcomm.com/hwcom>. The page title is "Hardware Components: Choose a Component". The navigation bar includes "Dashboard", "ChipCenter (HW)", "ChipCenter (SW)", "Hardware Components", "Tools", and "Support". The main heading is "Hardware Components: Choose a Component". Below this, there is a "Select a Component Type" dropdown menu set to "Camera Components". The "Filter Results" section shows "MSM8916" entered in the search box, with an "Apply" button. The "Sensor Vendor" list includes OmniVision Technologies (ShangHai) Co., Ltd. (9), Samsung Electronics Co., Ltd (6), Galaxycore Inc. (5), Sony Corporation (4), and Aptina Imaging Corp. (2). The "Camera Components" table lists the following results:

Name ▼	Chipset ▼	SW Product ▼	× Sensor Vendor ▼	× Sensor Part # ▼
Aptina-MT9D015-Sunny-P2M19A	MSM8916	MSM8916.LA.1.0	Aptina Imaging Corp.	MT9D015
Aptina-MT9D115-Q-Tech-FD115AK-3	MSM8916	MSM8916.LA.1.0	Aptina Imaging Corp.	MT9D115
GalaxyCore-GC0310-A-Kerr-ZS63VFR2.0	MSM8916	MSM8916.LA.1.0	Galaxycore Inc.	GC0310
GalaxyCore-GC0339-ISI -	MSM8916	MSM8916.LA.1.0	Galaxycore Inc.	GC0339

如何在GCDB上查找Camera驱动 — 续四

- 点击General Component Details页面的here to get， 如下图

General Component Details

Specification		Component Type	
Sensor # of Pixels:	VGA	Type:	Camera
Sensor Type:	RAW	Sensor Vendor:	Galaxycore Inc.
Sensor Die Size:	1/9"	Sensor Part #:	GC0339
Sensor Pixel Size:	2.5	Camera Vendor:	Shenzhen E-welly Electronics
Dimension:	6.5*6.5*4.15		Company Limited
Placement:	Front	Camera Part #:	GY563B1S
Lens:	XY-078L		
IR-Cut Filter:			
VCM:			
VCM Driver:			
Focus:	Fixed		

Chipset-Specific Details

Chipset

Software Product Details

MSM8916

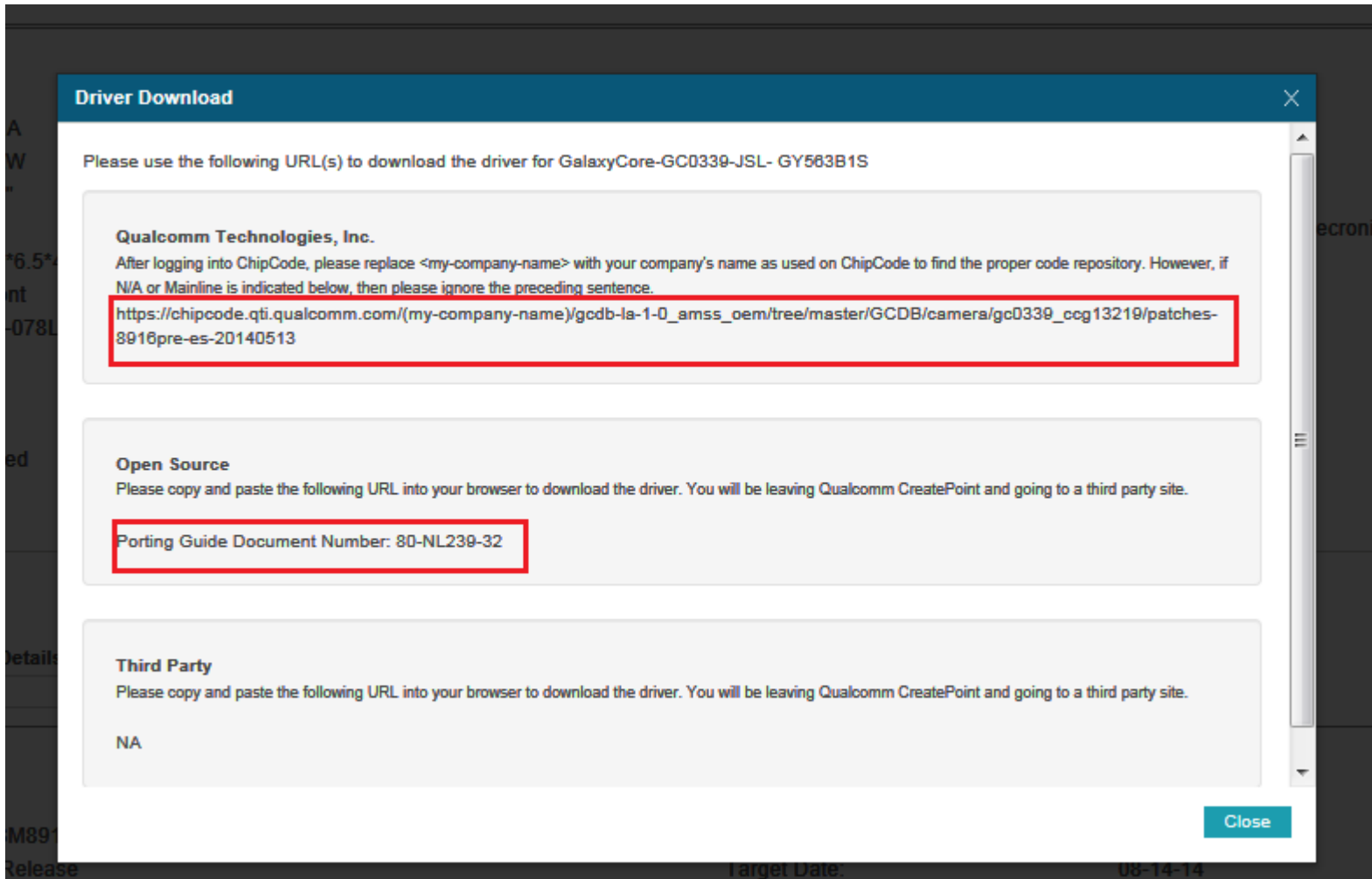
MSM8916.LA.1.0

Apply

Chipset Overview: MSM8916.LA.1.0			
Chipset:	MSM8916	Where to get:	Click Here
Verification Status:	In Release	Target Date:	08-14-14
Verification Level:	Not Assigned	Release Date:	07-31-14

如何在GCDB上查找Camera驱动 — 续五

- 点击 here to get: Click Here ，弹出如下子窗口
- 其中最上面是私有代码的下载地址。
- 中间是开源代码的下载地址，如果是MSM8916，因为不需要开源驱动，所以在这里没有地址而是给出了80-NL239-32中英文对照的camera驱动指南，指导如何对kernel部分针对你的硬件设计做必要的修改。



如何下载Camera驱动

- 在GCDB上得到的Camera驱动下载链接有两部分
 - 私有代码：在Chipcode上发布，需要代码下载权限帐号登录
 - 开源代码：在www.codeaurora.org上发布，无需帐号直接打开链接下载即可
- 私有代码，还是以上面查找到的GC0339@MSM8916为例，在where to go弹出的窗口得到下面链接
[https://chipcode.qti.qualcomm.com/\(my-company-name\)/gcdb-la-1-0_amss_oem/tree/master/GCDB/camera/gc0339_ccg13219/patches-8916pre-es-20140513](https://chipcode.qti.qualcomm.com/(my-company-name)/gcdb-la-1-0_amss_oem/tree/master/GCDB/camera/gc0339_ccg13219/patches-8916pre-es-20140513)
- 注意：上面链接不可以直接打开，**my-camera-name**需要替换成您公司名称后才是正确的下载网站。我们会在后续的GCDB网站升级中自动根据您的帐号生成直接可用网址

如何下载Camera驱动 — 续一

- 使用你的帐号登录chipcode网站，chipcode的网站是 <https://chipcode.qti.qualcomm.com>
- 在Groups列表可以看到类似ABC-co-ltd的链接，ABC-co-ltd就是上文提到的my-company-name
- 用查到的ABC-co-ltd替换上面提到的网站中的my-company-name，注意中间不要留任何的空格,打开网址
 - https://chipcode.qti.qualcomm.com/ABC-co-ltd/gcdb-la-1-0_amss_oem/tree/master/GCDB/camera/gc0339_ccg13219/patches-8916pre-es-20140513
- 下面就是最终的私有代码下载页面。您可以用git方式，或者直接zip方式下载

The screenshot shows the Qualcomm ChipCode interface. At the top, there's a search bar and navigation tabs. The 'Files' tab is active, showing a file path: `master > gcdb-la-1-0_amss_oem / GCDB / camera / gc0339_ccg13219 / patches-8916pre-es-20140513`. Below this, there's a table with columns: Name, Last Update, Last Commit, and a download icon. The table lists a file named `vendor` with a last update of '21 days ago' and a last commit of 'QC Publisher r00002.1 - Pre-ES 0.0.002.1'. To the right of the table, there are download links: 'Download from nearest regional server' (https://chipmaster2.qti.qualcomm.com) and 'Download from San Diego' (https://chipcode.qti.qualcomm.com). Below these links are buttons for different download formats: zip, tar.gz, tar, and tar.bz2.

- 详细的文字描述，请参考下面的Solution:
 - Solution:[00028472](#): Accessing PVL Camera Drivers from Global Components Database

Camera 关键 Solution

- Software
 - Solution:[00028470](#): Camera software documents Description and Usage: Part-1
- Tuning
 - Solution:[00028513](#): Camera Image Quality tuning documents Description and Usage - Part 1
- 上述Solution里面列出的文档列表我们会及时更新，请留意

Camera 关键文档

- 新模组驱动包括sensor/AF/Flash/OTP部分的编写，请详读文档“[80-NL239-32](#) : Sensor Module Bringup 摄像头模块驱动指南 Application Note 应用指南”（必读）
- 新平台camera特性的介绍请参考Overview文档（必读）
 - MSM8916为“[80-NL239-13](#) : Presentation: MSM8916 Linux Android Camera Overview”.
 - B familar的Overview文档为[80-NA157-22](#) : Presentation: MSM8974/APQ8074/MSM8X26/APQ8084 Linux Camera Overview
- 在模组点亮过程中或者稳定性调试过程中，需要打开camera不同部分的log，请参考“[80-NL239-33](#) : Linux Camera Debugging Application Note”
- 想进一步对Camera sensor部分代码有所了解，请观看下面培训视频和文档(MSM8916大部分同样适用):
 - VD80-NA157-22 ([View](#)): Video: MSM8974/APQ8074/MSM8X26/APQ8084 Linux Camera Overview
 - [80-NF499-3](#) : Presentation: Kernel Code Walkthrough For MSM8974/APQ8074/MSM8X26 Linux Camera Software
 - VD80-NF499-3 ([View](#)): Video: Kernel Code Walkthrough For MSM8974/APQ8074/MSM8X26 Linux Camera Software
 - [80-NF499-5](#) : Presentation: Sensor Module Code Walkthrough For MSM8974/APQ8074/MSM8X26 Linux Camera Software
 - VD80-NF499-5 ([View](#)): Video: Sensor Module Code Walkthrough For MSM8974/APQ8074/MSM8X26 Linux Camera Software
- 下面的Solution包含更全的camera software文档列表，推荐查看
 - Solution:[00028470](#): Camera software documents Description and Usage: Part-1

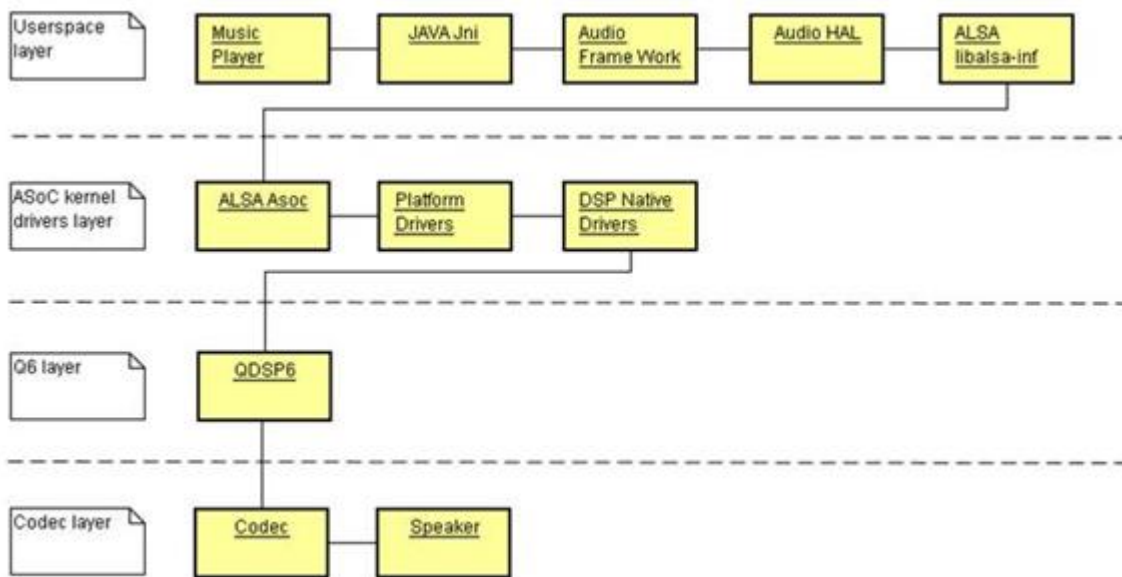


Audio

Audio 调试综述

- 音频的调试内容很多，首先熟悉音频软硬件架构
 - 可以阅读每款芯片的Audio的SW Overview的文档，以8916为例，80-NL239-17 MSM8916_LA_Audio_Overview
- 详细调试方法请参考各个芯片的Debug文档
 - 以8X26为例，80-ND928-1 MSM8x26_LA_Audio_Customization_Debug_Guide;
- LOG的抓取，各个层有各自的抓取的Log内容和方法，从上往下
 - 在AP端
 - User Space - 抓取Logcat Log和PCM的DUMP
 - Add this in the source file head
 - #define LOG_NDEBUB 0
 - #define LOG_NDDEBUB 0
 - Solution:[00013436](#) - Steps to collect PCM dumps in android userspace
 - Kernel - 层抓取Kernel Log，有很多Dynamic的Debug Message默认没有使能，需要手动使能
 - adb root
 - adb shell
 - mount -t debugfs debugfs /sys/kernel/debug
 - echo -n "file q6afe.c +p" > /sys/kernel/debug/dynamic_debug/control
 -
 - echo -n "file msm-pcm-routing-v2.c +p" > /sys/kernel/debug/dynamic_debug/control
 - adb shell cat /proc/kmsg | tee kmsg.txt
 - Q6 ADSP层
 - 抓取QXDM LOG；包括普通的F3打印消息和PCM的Packets
 - Codec层
 - 主要是抓取寄存器的DUMP，有两种方法
 - adb shell cat /sys/kernel/debug/asoc/<sound card>/<codec name>/codec_reg
 - Eg. adb shell cat /sys/kernel/debug/asoc/msm8226-tapan-snd-card/tapan_codec/codec_reg >wcd9306codecreg.txt
 - 用QACT的ADIE RTC功能
 - 硬件测量信号

Audio 调试综述 — 续一



- 有以上基础后，快速界定问题
 - 判断是否是数字部分的问题还是模拟部分的问题
 - 可以抓取QXDM LOG，检查AFE的PCM是否有问题
 - 如果是模拟方面的问题，从codec部分开始着手，抓取寄存器DUMP和Kernel LOG
 - 如果是数字方面的问题，区分是否PCM或者MP3数据在AP送入DSP之前就有问题
 - 可以抓取QXDM LOG，检查靠近AP端的0x152E PCM部分是存在问题
 - 详细请参考接下后面两页幻灯片，“Audio path log points” 和 “Audio path log points”
 - 可以抓取AP侧AUDIO HAL层的PCM，检查是否有问题
- 针对不同的问题进行分析
 - Audio Playback、Audio Recording、A2DP、FM、Voice、VoIP Call、Volume Control、MBHC
 - 详细内容请参考各个芯片的Debug文档，E.g. 80-ND928-1 MSM8x26_LA_Audio_Customization_Debug_Guide

Audio path log points

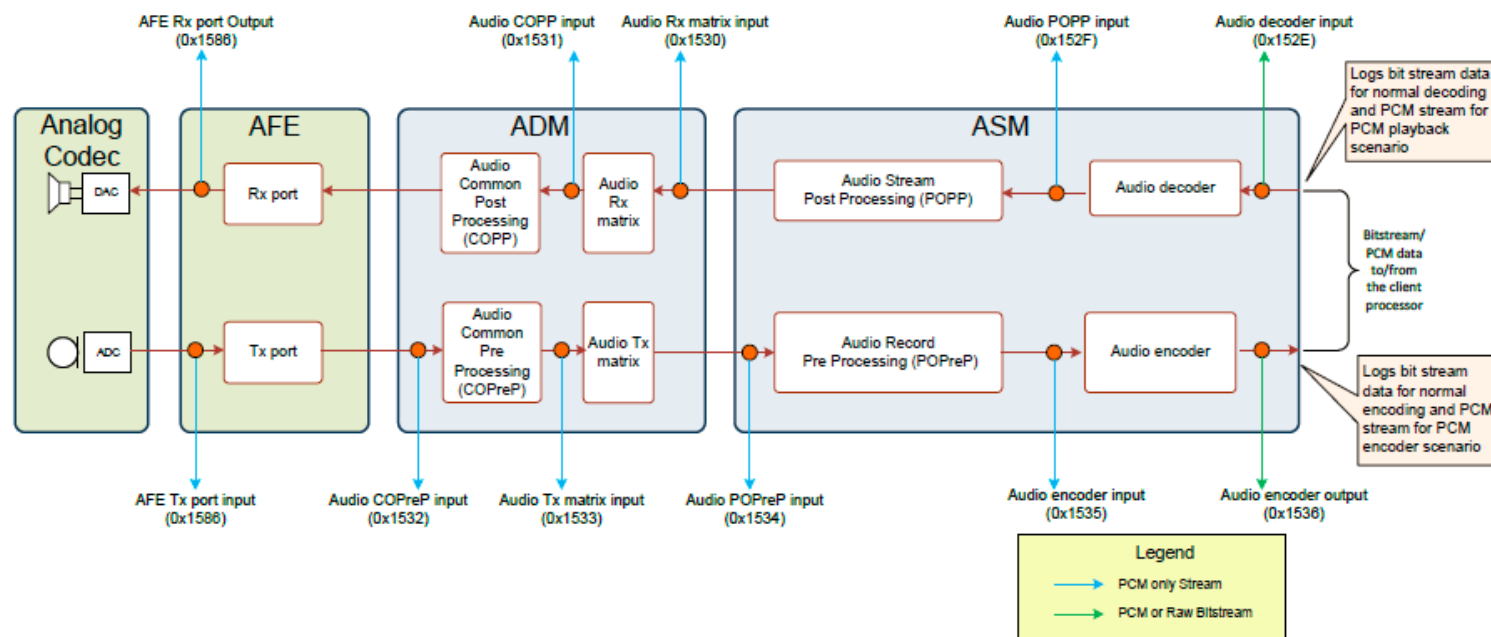


Figure 2-1 Audio path QXDM Pro log codes

Voice path log points

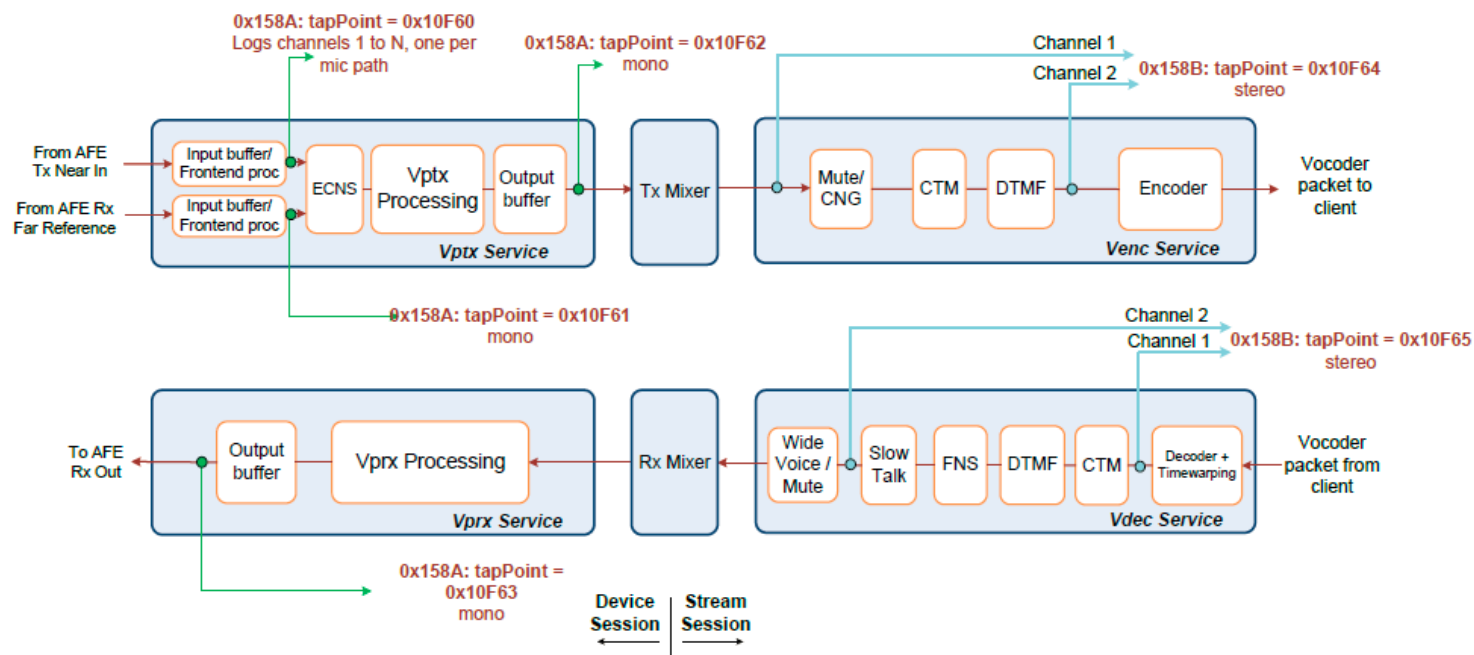


Figure 2-2 Voice path QXDM Pro log codes

Audio外部MI2S 接口的使用

- 确定需求，选择GPIO和I2S
 - 是否TX,RX两路都需要
 - 画出硬件接口和数据框图
- 获取SW patch配置I2S
 - Please create a case for it
- 验证Clock/验证RX通路音频播放。E.g. Primary MI2S Interface
 - amix "MI2S_RX Audio Mixer MultiMedia1" 1
 - aply /data/test.wav
- 验证TX通路录音，可以把SD0和SD1短接进行回环来验证TX
 - amix "MultiMedia1 Mixer MI2S_TX" 1
 - arec /data/rec.wav
- 更多的信息现在请参考
 - 文档 80-NH576-1 Audio_Playback_Over_MI2S_Data_Flow_and_Config
 - Solution:[00027361](#) - How to Enable MI2S interface on MSM8x26

Questions?

You may also submit questions to:

<https://support.cdmatech.com>

