

# Android Release Note

**TCC892x-Android-IceCreamSandwich-V1.02E-Release Note**

**June 25, 2012.**

***TeleChips***

***Preliminary***

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### Revision History

Date	Version	Description
2012-01-27	0.00	Release note for IceCreamSandwich alpha release
2012-02-20	0.01	Release note for IceCreamSandwich beta release
2012-03-05	1.00	Release note for v12.03_r1-tcc-android-4.0.3 official release
2012-04-20	1.01	Release note for v12.04_r1-tcc-android-4.0.4 official release
2012-06-25	1.02	Release note for v12.06_r1-tcc-android-4.0.4 official release

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## 1 v12.06\_r1-tcc-android-4.0.4 Release

You can check below comments from each repositories except hardware/telechips/tcc892x, hardware/telechips/dxb, device/telechips repositories. Please understand there may be some spelling mistakes and it can be found comments from GIT server, also.

### 1.1 Notice

- Support UVC Camera
- Support Wi-Fi Direct function
- Update MALI Driver – MALIr3p0\_04rel0
- Optimize multimedia functions  
: Local & Streaming playback

### 1.2 Function Limitations

In the **v12.06\_r1-tcc-android-4.0.4** Release, there are some function limitations. And for more information, refer to the following description.

No	Function	Description
1	WIFI	WIFI Direct function is supported. : In case of Atheros WIFI, it doesn't support this function yet.
		Support Broadcom BCM4330 (include Wi-Fi Direct) Support Realtek RT8189ES (include Wi-Fi Direct) Support WPS operation using push button.
2	UVC Camera	UVC Camera is supported and supported format is MJPEG and YUYV.
3	SD Boot	Support SD Card erase command
4	FWDN	In case of low format by FWDN, it was supported only eMMC before. But it supports SD/T-Flash from this version.
5	File system	Support EXT4 file system on NAND FTL Driver(V8).

[표 1. Function limitations in v12.06\_r1-tcc-android-4.0.4 Release]

### 1.3 Changes History

The following items are main items which changed from this version.

#### 1.3.1 System Part

- **System**

- ✓ Add Broadcom BCM4330 bluetooth function.
- ✓ Optimize driving strength & ODT setting of DDR3
- ✓ Change dirty\_ratio set 0 to 5 when connect ums  
: when ums connected dirty\_ratio set to 0 but it regress io performance so change dirty\_ratio set to 5
- ✓ Update RN5T614G PMIC Driver
- ✓ Fix the problem which dev/tmem device opened count is increased repeatedly
- ✓ Bug fix: to increase UMP\_memory when playing next/prev files with different resolution
- ✓ Update GPU scaling process (but this feature is disabled now)
- ✓ Support SD/MMC Erase function.
- ✓ Fix the problem that the eCompass module can be slept for a long time.
- ✓ Bug fix: folder be recognized by media's file when folder's last name was media's extension.
- ✓ Support eMMC low format and erase command function
- ✓ Bug fix: UMP allocation failed problem when wake-up work just after LCD start dimming
- ✓ Insert supplement code for shutdown
- ✓ Update PMIC (AXP192/RN5T614) drivers  
:set the LDO voltage level on bootloader, only control enable/disable in kernel
- ✓ Add a protection code while repeating plug-in/out UMS on USB host
- ✓ Change dalvik.vm.heapsize (256->368)
- ✓ Remove Phone and TelephonyProvider package on WiFi only devices
- ✓ Add Nanya-NT5CB256M8GN\_CG, Innosys-IN5CB256M8BN\_CB ddr3 init code
- ✓ Support SD/eMMC booting at M805S board
- ✓ Update ADC touch driver and add save external interrupt selection register.

- **Network**

- ✓ Add BCM4330 WIFI functions.
- ✓ Update WIFI driver for Realtek-rt8189es.
- ✓ Add BCM4330 firmware related to WIFI
- ✓ Add WIFI power control function
- ✓ Add tethering function using Realtek WIFI module
- ✓ Update Realtek WiFi (RT8188CUS/RT8189ES) for WiFi direct function

- **SD Card**

- ✓ Fix the problem - SDIO timeout error occurred during wakeup at tcc8923(0x1008) evm.

- **Filesystem**

- ✓ Support NAND version 8 driver and EXT4 file system on NAND.
- ✓ Fix the problem that was not displayed storage space on "Settings → Apps" menu.

- ✓ Updated UI related to NTFS format on Factory Data Reset menu.
- ✓ Fix fastboot erase command

### 1.3.2 Multimedia Part

- **Audio**

- ✓ Update AAC Decoder library to v3.18.08.\
- ✓ Improvement audio driver
- ✓ Fix bug that sound didn't out after recording using RT5633
- ✓ Update audio HAL for RT5625 codec
- ✓ Bug fix: CPU usage increased up to 95% at SPDIF out mode
- ✓ Add interface for adjusting the sampling rate
- ✓ Bug fix: Wave file recognition problem
- ✓ Update DDP(to DD) passthru and DRC control
- ✓ Fix bug that is related with high frequency WMA contents  
:Some WMA contents with high frequency over 48KHz is played so fast, because WMA decoder out the pcm downsampling it.
- ✓ Improve audio quality

- **Video**

- ✓ Bug fix: broken display of first frame just after LCD is off/on during playback.
- ✓ Bug fix: video editor error when inserting clip and playing video after inserting clip.
- ✓ Update VPU library (v2.5.0.03) for TCC892x.
- ✓ Add skip process when 30fps interlace video output to 50Hz.
- ✓ Support UVC Camera function.
- ✓ Bug fix: In case of specific video apk, timeout is happened during suspend/resume function.
- ✓ Update WMA & WMV Decoder library.
- ✓ Bug fix: unsmooth video play when vsync enable and wrong audio media time - ignore the difference between audio media time and real time
- ✓ Update FLV Demuxer library (v0.3.12)
- ✓ Modify to control VPU clock in detail
- ✓ Add a function to move a subtitle position in TCCVideoPlayer
- ✓ Support fast start playback of TS file format  
: increase mem size for m2m scaler use when video vsync
- ✓ Modify deinterlace when video is played through HWC renderer on LCD mode
- ✓ Bug fix: position problem in case SurfaceTexture reuse even though resolution of contents is changed
- ✓ Update transcoder API
- ✓ Modify to restore VPU when init function is failed
- ✓ [TCCVideoPlayer] bug fix: after preview is finished, application is crashed.
- ✓ Support HWC renderer mode when playing video on LCD
- ✓ Update MPG library to v1.83.5
- ✓ [Subtitle]Modified to display subtitle on UI layer.
- ✓ [Subtitle]Fixed an error what display red screen when play start
- ✓ [Subtitle]Modified to support RGB565 format when using CCFB driver
- ✓ Update MPG library v1.83.4

- **Streaming Play**

- ✓ Update RTSP pause/resume logic.

- ✓ Enhance playback of RTSP, HTML5, HLS, HPS
    - :Make HLS/RTSP seek stable
    - :Enhance interoperability of a various kind of HTML5 video apk.
    - :Avoid android audio track from hanging media player up.
  - ✓ Upload patch files to block ads before movie on Chinese flash video site.
  - ✓ Add HTTP Streaming service data.
  - ✓ Modify connection control value for RTSP
  - ✓ [HLS] Add safety code to clean connecting data source up fast
  - ✓ [HLS] Add 'vice versa' case of www.56.com
    - : Cover the HLS video clip that its url has not an m3u8 token but real service is HLS
  - ✓ [HLS] Add more safety code for HTTP connection while playing
  - ✓ [HTTP Streaming] Make heap memory of streaming cache and cdk demuxer thread to be cleaned up strictly
  - ✓ [HPS] Change AVI init. Option for streaming
  - ✓ Bug fix: Playing flash audio using OpenMax AL would be hung up if audio decoder returns time out
    - :ignore time out is comes from OMXCodec, because it will be decoded next time in common cases.
  - ✓ [HPS] Enhance playback stuttering protection
    - Create new demux thread for HPS
    - Remove the property tcc.parser.sequential
    - Tune delayed thread triggering time against caching underrun
    - Minimize playback stuttering
    - Fix the problem that webm files may not be recognized at SniffTCCMedia.a
      - : Webm files don't have 0x42 0x82 0x88 sequence at header
  - ✓ Media Streaming: Bug fix for misextraction of the duration of sequential mode buffer.
  - ✓ Update RTSP Seek operation(VOD)
  - ✓ Bug fix: seek operation didn't work correctly when playing flash video or Netflix
    - :Reset timestamp when all ports of video decoder component are flushed. Because previous timestamp and data in vpu buffer are useless.
  - ✓ [HTML5] consider more of resume-seek in HTML5VideoView
    - :solve display time mismatch problem at re-entering the same clip when this clip can't support seek.
  - ✓ [HLS]bug fix for playlist reloading routine
    - :prevent playlist sequence number from being overwrite by old one
  - ✓ Add ASF mime type for HTTP streaming
  - ✓ Optimize overall of HTML5/HLS/HPS
  - ✓ Media streaming: Tune media seek determination time not to run media seek while dragging progress thumb.
  - ✓ [HLS]Fix the excessive auto-pause/resume in HLS 'live' playback
  - ✓ [HLS]Tune configuration to endure http keep alive session
  - ✓ [HLS]support live.cntv.cn playback
  - ✓ [HPS]Add wav/mp4/general test code for DLNA
  - ✓ [HPS]Support wma/wmv/wav/mp4/mpg for DLNA specific server configurations.
- 
- **HDMI / Composite**
    - ✓ Modify to support auto-detection mode for HDMI
    - ✓ Change HDMI power control, HDMI power doesn't be controlled off



- at HDMI resolution is changed
- ✓ Check ECID. If TCC8925K and STB is used, HDMI is set 480p
- ✓ Modify video scale condition of bypass
- ✓ Fix display problem when HDMI is disconnected
- ✓ Fix clock setting of HDMI audio for SPDIF output
- ✓ Fix default resolution of auto-detect when device have wrong EDID
- ✓ Fix video resize problem of component and composite output

### 1.3.3 Graphic Part

- **MALI**
  - ✓ Update MALIr3p0\_04rel0.
- **Display**
  - ✓ Added alphablending to tcc scaler driver
  - ✓ Improve low quality of UI when rotation UI.
  - ✓ Remove ldpi in PRODUCT\_AAPT\_CONFIG
  - ✓ Fix the problem : Shaking display issue when 25fps video output to 60Hz
  - ✓ Modify to prevent LCD tearing
  - ✓ Bug fix: the problem is that UV order is changed if there is offset to crop source image [TCC892x]
  - ✓ Support simple deinterlace block on LCD and VIQE deinterlace block on HDMI
  - ✓ Modify to align UMP offset when playing video with specific resolution of YUV420 semi-planar.

### 1.3.4 Camera Part

- **JPEG**
  - ✓ modify to slideshow speed & duration
  - ✓ modify to image cropping don't save to external memory
  - ✓ bug fixed that duplicated image is displayed
  - ✓ bug fixed that folder be recognized by media's file when a folder's last name was media's extension
- **Stability**
  - ✓ Support to DE signal that mv9317 sensor.
  - ✓ Camera preview & capture sequence change more stability
  - ✓ Support TVP5150 preview, capture, recoding
  - ✓ add DE signal polarity setting variable.

### 1.3.5 Broadcasting part

- **Common**
  - ✓ Update GPSB-TSIF driver for suspend/resume.
  - ✓ Set default PTS interval & framerate. It is for default video delay value.
  - ✓ Update tcc\_dxb\_drv.ko and linuxtv component
  - ✓ Add file play function while recording
  - ✓ Update tcc\_dxb\_drv.ko (linuxtv driver)
  - ✓ Update TCCSWDemuxer\_V2\_018 for resolution change while playing
  - ✓ [TCC316X] Asm update for T-DMB(version 1.5.23)  
: bug fix TDMB TS Align problem
  - ✓ Modify to improve the speed of channel change
  - ✓ Update LATM parser

- ✓ Update BSAC decoder
- ✓ Bug fix: after channel scan, no audio output
- ✓ Update tcc\_gpsb\_tsif
- ✓ Fixed full view size in status bar hide
- ✓ [IPTV]Add protection code while parsing RTP header
  
- **ISDB-T**
  - ✓ Add an area-code field in channel DB.
  - ✓ Add a channel of "open university of Japan" to preset of Kanto wide-area.
  - ✓ Update IC-card driver for TCC8925\_M805S\_D3\_08X4\_2CS\_V1.4 board.
  - ✓ Arrange source for libISDBTDemux.Input.so, not code change.
  - ✓ Add EPG\_3List.
  - ✓ Update asm (MPW version 2, MPW version 1) - Improve stability
  - ✓ Support MPW version 2 and 2-Diversity.
  - ✓ Add a routine to discard the statement of caption & superimpose which has CS but non-whitespace characters within 0.5s form a previous one.
  - ✓ Change a channel name of yomiuri broadcasting system in kagoshima (traditional Chinese → simplified chine)
  - ✓ Modified to save a handover information in channel DB.
  - ✓ Modified to save EPG information of all services in same channel number
  - ✓ Set a default code table of closed caption on SBTVD full-seg
  - ✓ Indicate a display port when caption will be shown on LCD
  - ✓ Modified DEMUXINPUT\_ReadData function
  - ✓ Applied SUPPORT\_SMART\_STARTDMA to isdbt demux component
  - ✓ Add an EPG function that EPG data is accrued on SQL database
  - ✓ Modified to control a CCFB driver because CCFB driver is modified
  
- **DVB-T**
  - ✓ Fix a bug for iso6937 conversion at parsing EPG.
  - ✓ Add TsParse\_DVB.c to middleware, remove libTSProcDVB\_XX.a

## 2 v12.04\_r1-tcc-android-4.0.4 Release

You can check below comments from each repositories except hardware/telechips/tcc892x, hardware/telechips/dxb, device/telechips repositories. Please understand there may be some spelling mistakes and it can be found comments from GIT server, also.

### 2.1 Notice

- Updated – Android 4.0.4
- Support SD Boot function
- Optimized CTS test functions
- Changed the layout of partitions for eMMC
  - ➔ Refer to “eMMC Boot Quick Start Guide”
- Replaced power control driver for Bluetooth by rkill
  - ➔ Refer to “Bluetooth User Guide\_CSR”

### 2.2 Function Limitations

In the **v12.04\_r1-tcc-android-4.0.4** Release, there are some function limitations. And for more information, refer to the following description.

No	Function	Description
1	WIFI	WIFI Direct function is not yet supported.
2	Camera	Video snapshot disable
3	UVC	UVC Camera is not yet supported.
4	eMMC	MTP is not yet supported on eMMC Recovery mode is not yet supported on eMMC

[표1. Function limitations in v12.04\_r1-tcc-android-4.0.4 Release]

### 2.3 Known Issue

In the **v12.04\_r1-tcc-android-4.0.4** Release, there are some Known Issue. And for more information, refer to the following description.

Function	Description
Camera	H.264 encoder is not work well when VPU clock is used over 250MHz.
	Sometimes camera shutter sound is abnormal.
	About BGM, when camera enter preview, BGM should be stopped. But sometimes BGM don't stop.
VPU	In this version, there are some unstable issue about Encoder and Multi-instance
	When doing seek operation, sometimes display is broken in special contents.

[표2. Known Issue in v12.04\_r1-tcc-android-4.0.4 Release]

## 2.4 Changes History

The following items are main items which changed from this version.

### 2.4.1 System Part

- **Power**
  - ✓ Added pmic option of RN5T614(RICOH)
  - ✓ Changed coreA voltage from 1.25v to 1.35v using ricoh pmic
  - ✓ Added regulator(pmic) control process in pm.c file
- **Clock**
  - ✓ Set mem bus to 600Mhz for decoding FHD
    - ➔ some broadcasting FHD stream needs maximum mbus speed
- **USB**
  - ✓ Changed EHCI/OHCI driver kernel compile option to built-in
  - ✓ Moved usb host power control to ehci-tcc
- **Display**
  - ✓ Add new LVDS Driver ( hv070wsa :1024\*600 )
  - ✓ Fixed bug prev frame is displayed after resuming
- **Scaler**
  - ✓ Added alphablending to tcc scaler driver.
  - ✓ Changed crop condition , to made getting image address source
  - ✓ Update MtoM scaler function for STB solution.  
Changed wmix path to 'mixing' path for MtoM scaler(tcc\_scaler2.c).
- **Bluetooth**
  - ✓ Replaced by rfkill for bluetooth power driver
- **Network**
  - ✓ WIFI : Added power control for m805\_8925
  - ✓ WIFI: ar6103 / rt8188cu don't support dual band
  - ✓ Ethernet : Update GMAC driver for multicasting
  - ✓ Ethernet :  
Fixed the problem that ethernet setting is chanded wine rebooting wit static Ip
  - ✓ Remove mobile network attributes & add config\_voice\_capable / config\_sms\_capable to false
- **SD Card**
  - ✓ tcc892x\_stb: Fixed the SD port power consumption issue in the suspend state
- **Graphic**
  - ✓ Update MALI driver to MALIr2p4\_02rel
- **Filesystem**
  - ✓ Support NTFS type format
- **eMMC**
  - ✓ Improved the compatibility of eMMC(iNAND)boot.
  - ✓ Changed layout of eMMC partition  
Changed max partition mount to 16 for emmc and sd mmc

- **Nand**
  - ✓ Updated NAND Driver(V7)
    - V7 : TNFTL V7081
  - ✓ Fixed NAND Cycle restore problem

## **2.4.2 Multimedia Part**

- **Audio**
  - ✓ Added the audio driver for rt5633, rt5625 and rt5631
  - ✓ Update rt5633 audio driver from alsa 1.0.23 to 1.0.24
  - ✓ Update audio HAL for specific codecs.
  - ✓ Audio Channel0 and Channel1 use(Channel0:DAI, Channel1:SPDIF Opticla/HDMI)
  - ✓ Added SPDIF Compressed Data flag
  - ✓ Add SMOOTH\_PLAYBACK\_TUNE code for HBR passthru
- **Video**
  - ✓ Updated VPU library to v1.5.0
    - Support decoding MJPEG/VP8
    - Fixed the problem of decoding H.264 BP in streaming playback
    - Fixed the problem of special contents with H.264
    - Fixed bug of Divx B-frame skipping
  - ✓ Updated ASF DMX library to v02.004.003
  - ✓ Updated the TS demuxer library to ver0.11.07
  - ✓ Updated AVI Demuxer Library to v2.8.5
  - ✓ Support hardware decoding of VP8 on TCC892x
  - ✓ Added external function to use remote-player and linphone
  - ✓ Update mp4 demuxer library to v3.01.13
  - ✓ Update Internal Subtitle
  - ✓ Update PGS Decoder
  - ✓ Changed to using YUV420 Semi-Planar on VPU and Gralloc-buffer
  - ✓ Add property related with fullview mode on Web playback
  - ✓ Fixed video performance issue caused by UI update
  - ✓ Fixed An error occurs when video editor exports output only in decoding process, skimming related code operates
  - ✓ Increase sleep time from 100us to 50ms at MediaPlayer::disconnect to give a sufficient releasing time.
    - Meridian application could not play files repeatedly.
    - Because previous media player client was not released.
  - ✓ Fixed the problem that video frame is dropped during UI update at tcc.video.surface.support 1
  - ✓ Fixed incorrect time adjustment
    - In case of sequential mode, if an audio stream is shorter and ended than a video stream, we should need to adjust incorrect time
  - ✓ Fixed
    - A/V sync problem when performance is poor and vsync is enabled.
  - ✓ Fixed incorrect routine in not-supported audio stream
    - In case of not-supported audio stream, there is a problem changing demuxer mode from sequential to selective
  - ✓ Added some codes to support VP8 in webM file.
  - ✓ Supported VP8 h/w codec in case of google demuxer + vpu codec.
  - ✓ Changed the routine of vsync frame drop
  - ✓ Added MVC codec.
  - ✓ Added Checking ogg video file
  - ✓ Improved stability during multi-instance operation.
  - ✓ Changed vpu\_manager drivers to platform device to prevent system

- being hangup.
- ✓ Fixed decoding error on Youtube with no HQ mode
- **HTML5**
  - ✓ Do not stop sites playing fullscreen video in the onload handler to support a webpage which does not use HTML5 video tag.
  - ✓ Add workaround related that video view is not hidden after finishing playback.
- **HTTP**
  - ✓ Support http playback with fast open/seek for some TS files as optional mode.
  - ✓ Enhance overall HTTP streaming playback.
  - ✓ Prohibit buffer filled timeout during streaming playback.
  - ✓ Fix HLS error related to abnormal timestamp mapping in some TS encoding cases.
  - ✓ Support TS http streaming playback in case of http1.0 response without content length.
  - ✓ Enhance error resilience related to receiving chunked transfer encoding data.
  - ✓ Make HLS playback to run in Stagefright AwesomePlayer instead of NuPlayer because of website video compatibility and performance.
- **RTSP**
  - ✓ Enhance RTSP error resilience related to timestamp discontinuity, broken image.
  - ✓ Make RTSP playback to run in Stagefright AwesomePlayer instead of NuPlayer because of google CTS and various kinds of RTSP APK compatibility issues.
- **V2IP**
  - ✓ Added V2IP Api v0.5
  - ✓ Added direct renderer interface.
  - ✓ Added 3-way video call func.
  - ✓ Support hdmi during video call.
- **HDMI**
  - ✓ Added the option for rotation when display to HDMI device
  - ✓ Fixed bug of HDMI auto detect during video playback
  - ✓ Added Interlaced Video Bypass code at 1080i output setting
  - ✓ "hdmi 720p fixed" function doesn't work & camera hdmi support problem fix
- **Display ETC**
  - ✓ Added Deinterlace\_S block to use crop function for interlace image
    - ➔ because of black screen issue of vique block, use Deinterlace\_S block instead
  - ✓ VIQUE always ON, add vique bypass mode
  - ✓ fixed a display error of progressive frames when Deinterlace\_S block was enabled
  - ✓ Fixed the problem that video display is sometimes stopped at video channel change
  - ✓ To support VSync mode whenever HWC is used  
Generally, It is difficult to check if VSync mode can be used in AwesomePlayer layer.

It is why the playback like youtube/flash/streaming can't know if HWC is used or not.

So, The location to decide VSync mode is moved HWC layer.

- ✓ Vsync is skip frame state while renderer is disabled.
- ✓ Added function of crop image on the fly
- ✓ Modified to always support VSync mode except some case like web playback under inline mode

### **2.4.3 Camera Part**

- **JPEG**
  - ✓ No change point
- **Stability**
  - ✓ change not use scaler when input camera input size and output size is same.
  - ✓ Camera capture sequence optimize.
  - ✓ Change camera display position in case of V2IP
  - ✓ porting new camera module (s5k5caga\_3M sensor, srl30pc10\_1.3M sensor).
- **Memory buffer**
  - ✓ No change point
- **Bug fix**
  - ✓ Change camera display position in case of V2IP
  - ✓ display bug fix V2IP when 3-way call connected for prevent display broken.
  - ✓ infinity loop bug fix in camera start when not connected camera for prevent hang up.
  - ✓ infinity loop bug fix when camera preview and capture

### **2.4.4 Broadcasting part**

- **Common**
  - ✓ Added TCC353X Tuner component
  - ✓ Compiled with TCC88XX
  - ✓ Supported HDMI Hotplug in/out
  - ✓ Java application updated for all standards
- **ISDB-T**
  - ✓ Supported PNG Decoder at ISDBT
  - ✓ Dump-utility updated for ISDBT
  - ✓ Updated function for subtitle at ISDBT
  - ✓ ISDBT functional update - superimpose, subtitle, handover, BCAS message
  - ✓ Recoding/Capture function updated for ISDBT
- **DVB-T**
  - ✓ Improved function for passing command at DVB-T demux component
  - ✓ Recoding/Capture function updated for DVBT



### 3 v12.03\_r1-tcc-android-4.0.3 Release

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#### 3.1 Notice

#### 3.2 Function Limitations

In the v12.03\_r1-tcc-android-4.0.3 Release, there are some function limitations. And for more information, refer to the following description.

No	Function	Description
1	WIFI	WIFI Direct function is not yet supported.
2	Camera	Video snapshot disable
3	UVC	UVC Camera is not yet supported.
4	VPU	MJPEG codec is not yet supported.
5	Video	Image subtitle(PGS) is not yet supported.
6	NuPlayer (HTTP live streaming)	Streaming playback compatibility in each web site is not yet.

[표 1. Function limitations in v12.03\_r1-tcc-android-4.0.3 Release]

### 3.3 Known Issue

In the v12.03\_r1-tcc-android-4.0.3 Release, there are some Known Issue. And for more information, refer to the following description.

Function	Description
Camera	H.264 encoder is not work well when VPU clock is used over 250MHz.
	Sometimes camera shutter sound is abnormal.
	About BGM, when camera enter preview, BGM should be stopped. But sometimes BGM don't stop.
WiFi	In case of using Realtek(RT8188CU) WiFi module, when system resume after suspend, sometimes AP connection time may take over 5 sec.
VPU	In this version, there are some unstable issue about Encoder and Multi-instance
	When doing seek operation, sometimes display is broken in special contents.

[표 2. Known Issue in v12.03\_r1-tcc-android-4.0.3 Release]

### 3.4 Changes History

The following items are main items which changed from this version.

#### 3.4.1 System Part

- **WIFI**
  - ✓ Change default WIFI setting to AR6103
  - ✓ Update AR6003 driver (3.1\_RC.573)
  - ✓ Update wpa\_supplicant 0.8x
  - ✓ Add defined for WIFI power control : "CONFIG\_WIFI\_PWR\_CTL"
  - ✓ Tethering : Change upstream interface search to Ethernet.
- **PMIC**
  - ✓ Add AXP202 PMIC driver code
  - ✓ Update AXP192 driver about charging process
- **I2C**
  - ✓ Make I2C Core1 clock as 400KHz. Because Core1 can be used at broadcasting - it makes slow booting problem.
  - ✓ Fix I2C fail issue when system enter suspend mode in battery thread.
- **Clock**
  - ✓ Current maximum clock information : 932MHz/600MHz
  - ✓ Fix the problem related to HDMI clock setting.
- **USB**
  - ✓ Fix the problem that sometimes UMS fail is happened while USB storage is connected.
  - ✓ Increase USB compatibility
    - : Added USB\_EHCI\_TT\_NEWSCHED config option and update ehci-hcd/ohci-hcd ko file.
- **Battery**
  - ✓ Update battery driver.
- **M805S board**
  - ✓ Change the power key input GPIO of M805S\_8925 board
    - : PMU\_IRQ → PMU\_ONO
- **FWDN**
  - ✓ FWDN download speed improvement
    - Enable external L2 cache and adjust CPU clock.
- **Bluetooth**
  - ✓ Add Bluetooth host wake-up function
- **SD Card**
  - ✓ SD 3.0(UHS) T-Flash was modified to operate as a High-Speed mode.
  - ✓ Support the High Speed mode of eMMC - Only TCC8923\_D3 demo board

### 3.4.2 Multimedia Part

- **Audio**

- ✓ Delete Audio Output menu in "Setting→Sound" temporally.  
Because this function don't need on MID platform.
- ✓ Add audio direct path for VoIP.
- ✓ Update multi-audio selection routine to support arbitrary selection of audio track.
- ✓ Add selected audio track number by audio list.
- ✓ Add property for SPDIF setting enable
- ✓ Music application issue  
Fix a bug for Music app when sdcard is inserted or removed.  
: When sdcard is inserted or removed, Music App doesn't stop properly. It allows inappropriate actions to user.

- **Video**

- ✓ Fix memory alignment between decoder and renderer in HDMI case
- ✓ Modify to avoid frame drops for high fps video
- ✓ Added routine related to Fastplay and Skimming
- ✓ Bug fix : System hang-up is happened when HDMI video play → HDMI plug out → early suspend → late resume → HDMI plug in.  
→ Add initializing RDMA interrupts mask register when using HDMI video playback.
- ✓ Fix the problem that cannot load video content which is recorded by MPEG4 format in Video editor application.
- ✓ Deinterlace function
  - Support deinterlace on video playback through HDMI
  - Modify on-the-fly mode of deinterlace
- ✓ MP4 Demuxer
  - Update MP4 demuxer library to v3.01.12
  - Add getting MP4 demuxer meta data and key map.
- ✓ Video Output
  - Modify composite and component for vsync
  - Fix video problem of composite
- ✓ Update 3D UI display for 3D MKV file
- ✓ Support YCbCr\_SP format display in MALI driver
- ✓ Remote Player
  - Update remote player function for ICS
- ✓ Fix the problem that cannot play flash contents through HDMI
- ✓ If video contents have over 60fps, VPU clock work as Full-HD clock.

- **HTML5**

- ✓ Bug fix : When turning off 2D hardware acceleration, inline HTML5 Video was not rendered.  
If 2D hardware acceleration is not supported, then inline HTML5 Video will be played as full screen.

- **RTSP**

- ✓ Fix RTSP connection fail issue

- **Skype V2IP**

- ✓ Support Skype V2IP about camera preview in MALI driver.

- **Exception handling**

- ✓ Add exception handling about unsupported or unknown video codecs.

- **Gallery**
  - ✓ Remove Fisheye filter function temporally.  
: If MALI driver support it, this function will be included.
- **HDMI**
  - ✓ Fix the problem that HDMI auto-detection function is sometimes not work.

### 3.4.3 Camera Part

- **JPEG**
  - ✓ Support EXIF JPEG header format
- **Stability**
  - ✓ Added supplement code in camera capture part.
- **Memory buffer**
  - ✓ Extended JPU encoded buffer size because of big encoded file.  
: In case of noise image, it can be produced big encoded file. So we extended the size of encoded buffer.
- **Bug fix**
  - ✓ Add prevent exception code during deque buffer.  
→ Error occurs during CTS test when deque buffer. To prevent this problem, add retry code.

### 3.4.4 Broadcasting part

- **ISDB-T**
  - ✓ Modify ISDB-T smart T1 protocol
- **UI**
  - ✓ Modify top position error of screen mode
  - ✓ Remove capture code at fbsink component. It move to dxb\_service
  - ✓ Modify black screen issue when changing fullview of dxb
- **Audio**
  - ✓ Update CDK audio setting
- **Image**
  - ✓ Support JPEG encoder on JPU
  - ✓ Update capture function
- **Subtitle**
  - ✓ Update ISDB-T subtitle for ICS

## 4 Beta Release

You can check below comments from each repositories except hardware/telechips/tcc892x, hardware/telechips/dxb, device/telechips repositories. Please understand there may be some spelling mistakes and it can be found comments from git server, also.

### 4.1 Notice

- **Change Maximum CPU Clock**  
The maximum CPU clock is changed up to 932MHz from this SDK version.  
Regarding to Max. CPU clock, customer should select chipset type which they use.  
Currently, the default chipset is for TCC8923 chipset.  
If using TCC8925 chipset, customer should select TCC8925 chipset in kernel option.  
In order to change the chipset type,  
Please refer to "TCC892x-Android-IceCreamSandwich-V0.01E-Quick Start Guide.pdf".  
(page 11 – How to use TCC892x Chipset)
- **Fix Firmware upgrade problem**
- **Add Auto-detection function for HDMI**
- **Update VPU library (v0.0.0.67)**

### 4.2 Function Limitations

In the Beta Release, there are some function limitations. And for more information, refer to the following description.

No	Function	Description
1	Camera	-In Jpeg encoding, making of EXIF Header is not yet. -Video snapshot disable
2	NuPlayer ( http live streaming )	- Seek compatibility with video player in each web site of HTML5. Currently, it is only supported in android HTML5 video player UI of full screen. - Streaming playback compatibility in each web site is not yet.
3	VPU	-MJPEG codec is not yet supported.
4	UVC (USB Video Class)	-UVC Camera is not yet supported.
5	Video	- Multi speeds playback is not yet supported. - Internal subtitle is not yet supported. (PGS subtitle)
6	Bluetooth	-Bluetooth host wake up function in suspend status.
7	Wi-Fi	-Wi-Fi Direct function is not yet supported
8	DXB	-Not support ISDB-T Full Seg
8	etc	-A31 (SEM) module for BT + Wi-Fi combo is not yet supported.

[표 1. Function limitations in Beta Release]

### 4.3 Known Issue

In the Beta Release, there are some Known Issue. And for more information, refer to the following description.

Function	Description
Camera sound	<ul style="list-style-type: none"><li>- sometimes Camera shutter sound is abnormal</li><li>- sometimes BGM is played, Default setting is pause BGM in Camera.</li></ul>
VPU	<ul style="list-style-type: none"><li>- MPEG-2 field (interlaced) is unstable.</li><li>- I-frame search and PB-frame skip is unstable.</li><li>- H.264 Encoder abnormal at the high clock (over 250MHz)</li><li>- H.264 Enc/Dec Hang up when using multi-instance</li><li>- previous image display when I-frame search</li><li>- I-frame serch/PB-frame skip(Divx3 / AVS)</li></ul>
Skype	<ul style="list-style-type: none"><li>-Skype application don't use preview callback function.</li></ul> We are analyzing about it.
Ethernet(Gigabit)	<ul style="list-style-type: none"><li>-Ethernet Gigabit can't enable.</li></ul>
Nand	<ul style="list-style-type: none"><li>-64bit Random access error</li><li>-long name symbolic link error</li></ul>

[표2. Known Issue in Beta Release]

## 4.4 Repository

### 1.4.1 android/platform/packages/apps/Settings.git

- first storage is mounted at '/mnt/sdcard'
- Disply Output Setting Modify.
- Disply Output Setting Modify.
- fix ethernet setting error in user mode
- Disply Output Setting Modify
- Disply Output Setting Modify

### 1.4.2 android/device/telechips/common.git

- to apply final concept related with HWC in playback.
  1. In LCD playback mode, All decoded frame is displayed by Mali.
  2. In HDMI mode, All decoded frame is displayed by HWC with VSync mode.
- if can't find update file, output toast message  
For apply this patch, you should delete out/target/product/tcc8xxx/system/build.prop
- Register new static libraries to its list in release script.
- for V2IP(initial update).
- To fix Conflict error.
- change default cache to nand ftl area for update
- prevent to update after copy update file to /cache
- Get list from StorageManager.

### 1.4.3 android/kernel/tcc.git

- description : scaler 2 device driver add
- Description: update seek function of vsync
- VPU Version check structure is modified in tcc\_vpu\_ioctl.h for TCC8920
- wrong flow control setting
- support the PM\_CONSOLE\_NOT\_SUSPEND.
- [tcc892x] Added GPIO of Camera in M805\_8925
- m805\_892x: add wifi power control
- m805\_892x: add wifi power control driver
- tcc892x : adjust pm function map size
- tcc892x : change location of sstlio retention for sleep mode
- Fix composite and component problems.
  1. DAC of power is off when composite is initialized.
  2. Fix component problem of preview.
  3. Fix tcc8925\_dongle\_defconfig.
  4. Fix mouse bug when interlace output.
- Modify the CTS fail item(write attribute) about the sensor
- G2D interrupt enable at overlay mixing function
- default setting vsync and onthefly setting modify handler condition.
- bug fix for CTS
- Modified the PM\_CONSOLE\_NOT\_SUSPEND option.
- for prevent exception while CTS caemra test
- White screen is displayed at LCD power on/off on the M805s\_892x
- Fix HDMI PHY config setting.
- tcc892x : modify ip power control function and adc,battery driver to Reduce current consumption
- tcc892x : insert rtc,pll,otp,ecid power control
- tcc892x : correct typo
- SPDIF PCM Fuction add
- fix iperf tx issue and change drvier strength of TxClk,TxD
- compile error in tcc\_serial.c file on tcc88xx
- audio peri clock disalbe at suspend mode.
- tcc892x : insert usb otg ip power control



- Fix the SD driver for avoid the NULL pointer.
- bug fix for can't resume after camera use.
- LCD AT070TN93 - add LCD\_DISP-on/off control.
- ICS use audio alsa dirver with ver"1.0.24". some sound dapm codes were changed.  
It makes dapm working wrong. audio codec dosen't go into standby mode.
- Add the resume/suspend operation for the g-sensor driver
- tcc892x : arrange port to reduce current consumption for m805s
- repair : LCD AT070TN93 - add LCD\_DISP-on/off control.
- Modified the PM\_CONSOLE\_NOT\_SUSPEND option.
- Add wm8988 codec driver.
- Displaying video frame vy hw vsync interrupt enalbed as default
- Add the early suspend for the g-sensor driver.
- update audio driver for WM8988
- Add audio codec driver for RT5633
- Add 3D UI(SBS/TNB) display for 3D mkv file.
- Fix the compile warning for the g-sensor driver
- [tcc8920st]add control core1\_on, core2\_on, sleep\_mode\_ctl,
- for PowerManagement debugging, skip the "event wake\_lock" debug message.
- Add Cipher Drvier & SmartCard Driver
- SPDIF port setting of tcc8920st.
- video display stoped when HDMI plug in/out at video playing
- plung out hdmi int end of video play then extend lcd controller is death. so this code prevent this situation
- increase touch sensitive of internal touch
- tco pwm control function add for lcd backlight control
- pdate GMAC driver for power control
- remove code to make Phyreset port pull down
- modify calculate rmda number
- fix compile error tco pwm control
- Change HDMI audio clock setting sequence for tcc892x
- [tcc8923] Update port configuration for dxb
- add on-the-fly mode in deinterlace
- kernel panic problem fix about tco pwm
- tcc880x tco pwm add
- [tcc8923] update port configuration for dxb
- tcc892x : Support the WakeUp by Short Power Key.
- Added Camera GPIO of 8923\_D3\_08x4
- Fixed HDMI while camera uses
- Add gpio control of suspend/resume for tcc8920st.
- sleep & wake-up when using the PBUS Clock
- WDMA config function modify
- modify vsync timer interrupt setting
- fix hdmi audio clock setting by using spdif and spdif port setting for tcc8920st.
- Fix the build error for M805S\_TCC892x
- Expand AV algorithm memory because of DTS decoding
- modify onthefly condition of screen size
- fix component vioc disp swreset.
- sleep mode enable
- Disply Output Resize Modify.
- [isdbt] modify return value of quering dxb i2c port of STB
- modify funtion call condition of video vsync interrupts handler
- Set INTL bit of RDMA00 when current output is composite.
- Update output function for composite output.
- fix tcc8925st\_dongle\_defconfig and tcc8920st\_hdb892s\_defconfig
- [m805s\_tcc892x] Fixed Camera to turn on
- HDCP support for TCC892X
- Change OTG0\_MODE SET pin for HDB892S board. Update output starter

function.

- update battery driver for battery score
- make pull up port of uart when enter suspend and disable pull up when resume
- move line in suspend debug mode
- make pull up port of uart when enter suspend and disable pull up when resume
- modify uart suspend function for reducing current consumption
- update defconfig for xt\_qtaguid

#### **1.4.4 android/platform/frameworks/base.git**

- Update support MOV mime type
- Replace the AudioPlayer class with the TCCAudioPlayer class in stagefright.
- to apply final concept related with HWC in playback.
  1. In LCD playback mode, All decoded frame is displayed by Mali.
  2. In HDMI mode, All decoded frame is displayed by HWC with VSync mode.
- kernel mouse pointer performance improvement
- Support high audio samplingrate over than 48 Khz.
- when setting the vsync mode, checking output mode. -  
output is LCD, don't use vsync mode
- Support mkv internal subtitle
- [Revert]Added an option in the method
- first storage is mounted at '/mnt/sdcard'
- SPDIF PCM Fuction add
- SPDIF Pass-Through Fuction add
- SPDIF Pass-Through Fuction add
- Multi-audio selection routine for ICS has been added.
- [Subtitle] modified a setSubtitle function.
- property set when file play
- Fixed an error of CTS test
- Use Stagefright instead of NuPlayer  
A large fraction of NuPlayer needs to be modified to work HLS well.  
So, use Stagefright as a HLS player temporarily.
- [bug fixed] duplicate image displayed in Gallery3D
- android reset when device is going to shutdown
- Long push key buttun(Shut off) function enable modify.
- for V2IP(initial update).
- [Subtitie] Fixed an error
- Interface example for V2IP
- [bugfix] Virtual Mouse is not displayed
- Add window flag for hiding status bar
- app size issue when Status Bar is hidden.
- SIGSEGV error by glDrawElements
- App Screen Size Issue
- add several function
- add function and text for remoteplayer
- Fixed an exception error when play content on m.youtube.com site.
- Modify the bug of ICS rtsp related to rtp url in SDP.
- add case of ALIGN\_NORMAL , it is temporary
- Fix browser can't find some bitmap resources when ldpi resources are included
- APK Installation for SD Card
- non-media file filtering (ex. dat text file)
- block log code

#### **1.4.5 android/device/telechips/m805\_892x.git**

- add permission for wifi power control device
- change vsync setting (in default, onthefly)
- [tcc\_dxb\_service] add graphics group
- [firmware update] change default storage to NAND FTL for firmware update
- Issue : Add system feature(camera, usb accessory) for cts
- Add ldpi to PRODUCT\_AAPT\_CONFIG
- OSD Active Property Add.
- HDCP support for TCC892X.
- APK Installation for SD Card

## 1.4.6 android/device/telechips/tcc892x-common.git

- vpu modules are changed due to the change of version check structure.
- vpu is updated into v0.62.
- realtek: update driver
- enable CONFIG\_MINIMAL\_MEMORY\_USAGE
- vpu v0.64 is updated for TCC892x
- vpu v0.65 is updated for TCC892x
- add camcorder parameter for CTS test
- vpu v0.67 is updated for TCC892x
- Not use HWUI because of browsing speed

## 1.4.7 android/kernel/lk.git /

- Fixed the problem that not supported the OTA package update.
- default wifi is off
- Fix HDMI PHY config setting.
- remocon update for tcc8920st
- sleep mode update for remocon boot
- LCD ED090NA reset pin maaping modify at TCC88xx demo board
- remove port configuration of UART
- config input of adc port for BAT, AC
- add low battery logo
- arrange port to reduce current consumption for m805s
- NAND Driver Updata [V7079]
- tco pwm control function add for lcd backlight control
- Change default core voltage of hdmi dongle board to 1.35V.
- TCC8923\_D3\_08X4\_SV01 bring-up
- HW 1008 feature add at LCD driver
- TCC8923\_D3\_08X4\_SV01 bring-up - Support the eMMC boot.
- Modify memory size to double for ccfb.
- changed overlay priority.
- Change OTG0\_MODE SET pin for HDB892S board.
- m805 gpio port setting

## 1.4.8 android/platform/packages/apps/Camera.git

- bug fix panorama shot
  1. add log for CTS
  2. bug fix for can't display panorama shot preview after confirm image.
- Blocked BGM When it goes to Camera.
- Changed position of PauseAudio

## 1.4.9 android/platform/hardware/telechips/common.git

- Replace the AudioPlayer class with the TCCAudioPlayer class in stagefright.
- to always work HWC in HDMI mode.
- Google AMR decoder component do not support config data.  
It decodes config data as a audio frame. So, it will cause decoding error.
- to apply final concept related with HWC in playback.
  1. In LCD playback mode, All decoded frame is displayed by Mali.
  2. In HDMI mode, All decoded frame is displayed by HWC with VSync mode.

- to move private data region in gralloc buffer.
- Wrong metadata is retrieved from WMA file.
- Some string data were extracted as integer type.
- Support mkv internal subtitle
- update deinterlace routine by "to always work HWC in HDMI mode"
- change vsync setting ( in default, onthefly)
- bug fix for CTS test
- Fix HDMI PHY config setting.
- SPDIF PCM Fuction add
- SPDIF Pass-Through Fuction add
- If duration of video file is smaller than 1 sec, divide by zero error occurred.
- add Camera buffer setting initialize
  1. add init value for gralloc buffer
  2. add default parameter for CTS
- roll back default parameter
- Add wm8988 codec driver.
- add check condition of tcc8920 vsync ontherfly
- update audio driver for WM8988
- Add audio codec driver for RT5633
- Added Source to use HDMI
- Multi-audio selection routine for ICS has been added.
- SPDIFHardwareStub.cpp add data write method and add error handling
- Add RM DMX library v0.5.9
- Update HOW\_TO\_BUILD\_MEDIA\_LIBS.
- a certain codes for SPDIF dirver make a side-effect.  
when headjack is inserted, system down.
- for V2IP(initial update).
- Interface example for V2IP.
- tcc-interface minor error is fixed.
- add on-the-fly mode in deinterlace
- video display device(HDMI <->LCD) change function add
- repository: hardware/telechips/omx
- video display device(HDMI <->LCD) change function add
- add checking mCropRgn\_changed at HDMI
- Update mp4 demuxer library to v3.01.10
- [vsync]add vsync re-  
sync codes(end & start vsync) when buffer\_id &0x8000000
- in broadcasting, vpu can be opened/closed without destroying surface. at that time it makes vsync errors.
- transfer rotation infomation to TCCMediaExtractor
- Between V2IP and Camera has different Number of preview buffer.  
so, Camera can use HDMI but not test yet.
- add RawImageNotify callback
- change camera parameter: video-snapshot-supported to false.
- add fuction & libaray for remoteplayer.
- remove remote\_player/Android.mk.bak
- API for VideoCall interface.
- modify vsync onthefly condition of m805 serise
- video call library.
- make sure that videocall interface become library.
- fix composite output problem of tcc8920
- add fuction & libaray for remoteplayer.
- Replacing AVI DMX Library to v2.8.3.
- to set callback function to receive RTP packet."
- to change library path.
- remoteplayer: block log
- update screen mode function for ICS
- HDCP support.

- API for VideoCall interface in detail.
- Renderer can't use more than one because of insufficient scaler h/w block.
- Changed From YUV420p to YUV420sp for camera preview parameter setting
- to change fps/bps properly.
- to ignore negative position value in renderer
- add support preview format for CTS
- To add keyInterval value for V2IP interface.
- To add keyInterval value for V2IP interface.
- change the difinition for codec\_type.
- Fixed the number of Preview Buffer

#### 1.4.10 android/device/telechips/tcc8920st.git

- enable ums of nand&sdcard
- first storage is mounted at '/mnt/sdcard'
- multi-partition mount setting
- delete init.tcc8920st\_dongle.rc file.
- [tcc\_dxb\_service]add graphics group
- make BOARD\_VIDEO\_DISPLAY\_BY\_VSYNC\_INT\_FLAG true as default
- Long push key buttun(Shut off) Properties Add.
- Long push key buttun(Shut off) Properties Add.
- VSYNC Enable
- Add ldpi to PRODUCT\_AAPT\_CONFIG
- OSD Active Property Add
- add script to start remote\_player\_service
- APK Installation for SD card
- remote player service is started by Remote Player Controller
- :

#### 1.4.11 android/device/telechips/tcc8920\_emmc.git

- for using mtp on emmc add property
- [tcc\_dxb\_service]add graphics group
- APK Installation for SD card

#### 1.4.12 android/device/telechips/tcc8920.git

- default setting vsync and onthefly setting
- [firmware update] change default storage to NAND FTL for firmware update
- Add system feature(camera, usb accessory) for cts
- Add ldpi to PRODUCT\_AAPT\_CONFIG
- OSD Acitve Property Add
- add script to start remote\_player\_service
- APK Installation for SD Card

#### 1.4.13 android/platform/system/vold.git

- first storage is mounted at '/mnt/sdcard'
- if property set, mount without checkdisk
- APK Installation for SD Card

#### 1.4.14 android/platform/hardware/telechips/omx.git

- VPU Version check routine is modified.
- When playing a video has 48kHz audio, sound is slowing down.
- to apply final concept related with HWC in playback.
  1. In LCD playback mode, All decoded frame is displayed by Mali.
  2. In HDMI mode, All decoded frame is displayed by HWC with VSync mode.
- to copy decoded and private data into gralloc buffer.
- to move private data region in gralloc buffer.
- update deinterlace routine by "to always work HWC in HDMI mode"
- fps changing error in MPEG4 case.
- to prevent segmentation fault and encoder init fail.
- to give appropriate data.

- vpu v0.64 is updated for TCC892x
- for V2IP(initial update).
- Log message is removed when field picture is decoded.
- video display device(HDMI <->LCD) change function add
- add exception routine for remoteplayer.
- to debug video component.

#### 1.4.15 android/platform/packages/apps/TCCVideoPlayer.git

- make videoview surface invisible and visible
- hide status bar in preview
- modify back key event
- fixed null pointer error
- Remove unused code and show status bar
- Hide MENU by ESC key
- [revert] Remove unused code and show status bar
- Add window flag for hiding status bar
- fixed performance issue
- Subtitle On/Off, Font Size
- Repeat play error
- Prevent to restart app when Keyboard is plug-in/out
- Menu Icon Change
- Audio Track Change

#### 1.4.16 android/platform/system/core.git

- SPDIF PCM Fuction add
- : SPDIF Pass-Through Fuction add
- make mediaserver have permission of graphics group
- Added property of Camera's using
- for V2IP(initial update).
- add permission for tcc.xxx property

#### 1.4.17 android/platform/packages/apps/Gallery2.git

- Update support FLV mime type
- [Subtitle] Modified a default setting
- add to vsync function
- remove unsupport function of Image Editor. (Face Glow, Face Tan)

#### 1.4.18 android/platform/bootable/recovery.git

- firmware update fail because of random device has not enough entropy. random device must have to entropy poll for generate random number so, change random device to urandom device

#### 1.4.19 android/platform/hardware/telechips/nand.git

- correct gpio setting of rst\_irq
- NAND Driver Update [V7079]
- TCC8923\_D3\_08X4\_SV01 bring-up
- adjust port for only lcs nand

#### 1.4.20 android/platform/packages/providers/MediaProvider.git

- [bug fixed] In the gallery3d, file is not delete.
- [bug fixed] duplicate image displayed in Gallery3D

#### 1.4.21 android/platform/hardware/libhardware\_legacy.git

- for wifi power control
- SPDIF PCM Fuction add
- SPDIF Pass-Through Fuction add

## 1.4.22 android/platform/build.git

- Add missing JNI library for PinyinIME

## 1.4.23 android/platform/hardware/telechips/dxb.git

This version is a first release version, so there is no history.

## 5 Alpha Release

You can check below comments from each repositories except hardware/telechips/tcc892x, hardware/telechips/dxb, device/telechips repositories. Please understand there may be some spelling mistakes and it can be found comments from git server, also.

### 5.1 Function Limitations

In the Alpha Release, there are some function limitations. And for more information, refer to the following description.

No	Function	Description
1	Camera	In Jpeg encoding, making of EXIF Header is not yet.
2	Audio	<ul style="list-style-type: none"> <li>'- SPDIF output function is not yet supported.</li> <li>'- Selecting audio tracks is not yet supported.</li> <li>'- Contents of AMR audio codec in MP4 format is not yet.</li> </ul>
3	NuPlayer ( http live streaming )	<ul style="list-style-type: none"> <li>'- Seek compatibility with video player in each web site of HTML5.</li> </ul> <p>Currently, it is only supported in android HTML5 video player UI of full screen.</p> <ul style="list-style-type: none"> <li>'- Streaming playback compatibility in each web site is not yet.</li> </ul>
4	VPU	MJPEG codec is not yet supported.
5	UVC (USB Video Class)	UVC Camera is not yet supported.
6	Video	<ul style="list-style-type: none"> <li>'- Video display for HDMI to use with "Onthefly" path is not yet supported.</li> <li>'- Multi speeds playback is not yet supported.</li> <li>'- Internal subtitle is not yet supported. (text : *.ssa, *.srt)</li> </ul>
7	Bluetooth	Bluetooth host wake up function in suspend status.
8	Wi-Fi	Wi-Fi Direct function is not yet supported
9	etc	A31 (SEM) module for BT + Wi-Fi combo is not yet supported.

[표1. Function limitations in Alpha Release]



## 5.2 Known Issue

In the Alpha Release, there are some Known Issue. And for more information, refer to the following description.

Function	Description
Camera sound	Camera shutter sound is abnormal Camera zoom BGM is abnormal.
VPU	'- RMVB resolution change is not yet. '- H.263, Sorenson spark, MPEG-4, Divx4.x~6.x is unstable. '- MPEG-4 : Packed PB-frame control and GMC error control '- MPEG-2 field (interlaced) is unstable. '- I-frame search and PB-frame skip is unstable.
Video Composite /Component Output	In interlace output (HDMI 1080i, Composite NTSC/PAL, Component 1080i), Top-field is reversed image data against Bottom-field.
Skype	Skype application don't use preview callback function. We are analyzing about it.
Ethernet(Gigabit)	Ethernet Gigabit can't enable.

[표2. Known Issue in Alpha Release]

## 5.3 Repository

*This version is a first release version, so there is no history.*