TCC803x Automotive Linux SDK

Release Note

V3.0.2 [A]
2018-09-06

TABLE OF CONTENTS

Contents

1 INTRODUCTION

1.1 Feature

- Support SNOR/EMMC Boot mode
- Media Player
- iPod Digital Audio (3rd party license required, iAP2)
- CarPlay (3rd party license required)
- Bluetooth (Telechips agreement required)
- Support OpenGL ES1.1/2.0/3.2, EGL
- Support Wayland
- Support Micom
- Support IPC driver
- Support Firmware update
- Early/RearCamera (TBD, Telechips agreement required)
- Secure Boot (TBD)
- Support ARM **T**rusted **E**xecution **E**nvironment (TBD, 3rd party license required)
- **H**igh-bandwidth **D**igital **C**ontent **P**rotection 2.2 (TBD, 3rd party license required)
- TRMP (TBD)
- Broadcasting (TBD)

1.2 System Requirements

1.2.1 Hardware Requirements

- TCC803x Demo Board
- 12V/5A Power Adapter
- USB Cable

1.2.2 Software Requirements

- VTC Driver
- FWDN

1.3 Supported Operation system and Platforms

This chapter describes the supported OS and platforms in this version.

Operating Environment	Description
OS	Linux
Device	TCC803x EVB
Firmware	Automotive Linux SDK
Build system	Yocto Project 2.4.3 Rocko Install x86_64-buildtools-nativesdk-standalone-2.4.3.sh for Host System
Primary Packages	alsa-lib-1.1.4 pulseaudio 10.0 dbus-1.10.20 system-234 GStreamer 1.10.4 OpenMax IL OpenGL ES 1.1/2.0/3.2, EGL Wayland 1.12.0 Weston 1.12.0 QT5 5.6.3

1.4 Release Components

This chapter describes the released hardware and components in this version.

Component	Description
Micom Rom	■ micom_MACHINE.rom
Boot Loader	■ u-boot ■ MACHINE-fwdn.rom
Kernel	■ Linux Kernel 4.4.120 ■ Tc-boot-MACHINE.img
Device Tree Binary	■ zImage-MACHINE-linux-lpd4321_sv0.1.dtb
Root File System	■ automotive-linux-platform-image-MACHINE.ext4 (read only) ■ home-directory.ext4 (read-write)
Cross Compiler	■ complied compiler at build time, linaro gcc 7.2.1 2017.11, glibc 2.20
Application Development Toolkit	■ telechips-als-v3.0.2-toolchain-cortexa53hf-neon-fp-armv8-opengl-wayland-ivi-qt5-x86_64-gcc-linaro-7.2.sh ■ telechips-als-v3.0.2-toolchain-cortexa53hf-neon-fp-armv8-opengl-wayland-ivi-x86_64-gcc-linaro-7.2.sh ■ telechips-als-v3.0.2-toolchain-cortexa53hf-neon-fp-armv8-opengl-wayland-x86_64-gcc-linaro-7.2.sh

1.5 Document List

Folder	Document	Remark
	TCC803x Automotive Linux SDK-Release Note V3.0.2	
	TCC803x Automotive Linux SDK-Quick Start Guide	
Datasheet	TCC8030_CHIP_SPEC, TCC8031_CHIP_SPEC, TCC8033_CHIP_SPEC, TCC8034_CHIP_SPEC, TCC8030_FULL_SPEC, TCC8031_FULL_SPEC, TCC8033_FULL_SPEC, TCC8034_FULL_SPEC	
SW	TCC803x Automotive Linux SDK-User Guide for IPC	
	TCCxxxx Automotive Linux SDK-Application Guide for Audio Manager	
	TCCxxxx Automotive Linux SDK-Development Guide for Application	
	TCCxxxx Automotive Linux SDK-User Guide for Firmware Update	
	TCCxxxx Automotive Linux SDK-Reference Manual for Supported Media Format	
	TCCxxxx Auto.CE Common SDK-User Guide for LPDDR4 Configuration	
	TCCxxxx Auto.CE Common SDK-User Guide for USB VBUS Control	
HW	TCC803x Automotive Common Hardware-Quick Start Guide for EVB	Summary of "User Guide for EVB"
	TCC803x Automotive Common Hardware-User Guide for EVB	
	Schematics	Folder for Board Schematics

2 RELEASE INFORMATION

2.1 SDK V3.0.2 (2018-09-06)

2.1.1 New Feature/Improvement

- ■ Kernel & Driver
  - ● Add IPC driver in kernel.
- ■ Firmware Update
  - ● It is the first release.
  - ● Refer to the TCCxxxx Automotive Linux SDK-User Guide for Firmware Update.
- ■ WiFi
  - ● Update firmware and clm file to synchronize with driver.
- ■ CarPlay, iAP2, Rear/EarlyCamera, Bluetooth.
  - ● Refer to the document of each feature which is released separately.

2.1.2 Notification

- ■ 'ALS v3.0 rev.002' was tagged with als_v3.0.2 of the v3.x branch.
- ■ The iAP1 is deprecated.
- ■ Tools git repository was replaced with FTP.
  - ● To use "download.sh", ncftp must be installed on your PC.
- ■ Add signtool for secure boot.
- ■ EarlyCamera & RearCamera not included temporary.

2.1.3 Resolved Issues

Feature	Resolved Issue	Description
Bootloader & Kernel & Driver	Support NTFS	

2.1.4 Known Issues & Workaround

Feature	Known Issue	Description	Workaround
GStreamer	MP1 / MP2 Audio Codec is under development		
Media Player	The video list is not visible	Step 1. Change list mode in Audio (folder → meta) 2. Change content (Audio → Video) 3. Click list button **Note:** The normal operation in Folder List status	
	The audio meta list is not visible	Step 1. Change list mode (folder → meta) and move track category 2. Move next page and select file 3. Click list button	
Rear / Early Camera	Refer to the release note for CarPlay SDK which is released separately		
CarPlay	Refer to the release note for CarPlay SDK which is released separately		
iAP2	Refer to the release note for iAP2 SDK which is released separately		
Bluetooth	Refer to the release note for iAP2 SDK which is released separately		

2.2   SDK V3.0.1 (2018-07-19)

2.2.1   New Feature/Improvement

- ■ Add EarlyCamera feature.
- ■ CarPlay, iAP2
  - ● Refer to the document of each feature which is released separately.

2.2.2   Notification

- ■ 'ALS v3.0 rev.001' was tagged with als_v3.0.1 of the v3.x branch.
- ■ The iAP1 in next version will be deprecated.

2.2.3   Resolved Issues

Feature	Resolved Issue	Description
ALSA	Fix ALSA dmix plugin did not work	
Rear Camera	Support Early camera	
	Fix using parking guide line in splash partition did not work	

2.2.4   Known Issues & Workaround

Feature	Known Issue	Description	Workaround
Bootloader & Kernel & Driver	NTFS not support		
GStreamer	MP1 / MP2 Audio Codec is under development		
Media Player	The video list is not visible	Step 1. Change list mode in Audio (folder → meta) 2. Change content (Audio → Video) 3. Click list button **Note:** The normal operation in Folder List status	
	The audio meta list is not visible	Step 1. Change list mode (folder → meta) and move track category 2. Move next page and select file 3. Click list button	
CarPlay	Refer to the release note for CarPlay SDK which is released separately		
iAP2	Refer to the release note for iAP2 SDK which is released separately		
Bluetooth	Connection trying will fail during searching device		

2.3   SDK V3.0.0 (2018-05-31)

2.3.1   New Feature/Improvement

- ■ Update Yocto Project(2.2 Morty → 2.4 Rocko)
- ■ Bootloader & Kernel & Drivers
  - ● Bootloader has changed from lk to u-boot. (2016.01)
  - ● Changed kernel version. (version: 4.4.120)
- ■ Bluetooth
  - ● V6.8.3, 2018-05-17
  - ● Support new BT module. (TCM3840)
  - ● Improve recovery function for unexpected error.
  - ● Fix pairing problem with iPhone.
- ■ WiFi
  - ● Driver : 1.363.48(r.013) / Firmware: 9.40.74
  - ● Add TCM8040 WiFi Driver. (station / softap)
- ■ Rear Camera
  - ● Add videosource driver to control video decoder.
  - ● Change IOCTL command.
- ■ GStreamer
  - ● Change MP3 audio decoder source provider.
    - • From Telechips to OSS (Android)
  - ● Change AAC audio decoder source provider.
    - • From Telechips to OSS (Fraunhofer FDK AAC)
  - ● Change AAC audio decoder specification.
    - • Remove LTP, main profile
    - • Add ELD profile
  - ● Change decoded video information structure.
    - • Add Chip dependent feature
- ■ CarPlay, iAP2
  - ● Refer to the document of each feature which is released separately.

2.3.2   Notification

- ■ Only Support TCC803x.
- ■ Miracast is deprecated.
- ■ TCC803x does not support X11 graphic system, but only supports wayland graphic system.
- ■ 'ALS v3.0' was tagged with asl_v3.0.0 of the v3.x branch.

2.3.3   Known Issues & Workaround

Feature	Known Issue	Description	Workaround
Bootloader & Kernel & Driver	NTFS not support		
ALSA	ALSA lib cannot work dmix plugin		
GStreamer	MP1 / MP2 Audio Codec is under development		
Media Player	The video list is not visible	Step 1. Change list mode in Audio (folder → meta) 2. Change content (Audio → Video) 3. Click list button **Note:** The normal operation in Folder List status	
	The audio meta list is not visible	Step 1. Change list mode (folder → meta) and move track category 2. Move next page and select file 3. Click list button	
Rear Camera	Early camera not support yet		
	Using parking guide line in splash partition doesn't work		
CarPlay	Refer to the release note for CarPlay SDK which is released separately		
iAP2	Refer to the release note for iAP2 SDK which is released separately		
Bluetooth	Connection trying will fail during searching device		

APPENDIX

3 PACKAGE INFORMATION

3.1 SDK Root File System Image Information

Image information	
distro	poky-telechips-systemd
size(KB)	239,272(wayland)
distro version	2.4.3
user classes	buildstats
image features	debug-tweaks read-only-rootfs
image linguas	ko-kr ko-kr.euc-kr en-gb en-gb.iso-8859-1 en-us en-us.iso-8859-1
image install	packagegroup-core-boot-telechips-ivi
	customize-rootfs
	dbus
	alsa-utils
	alsa-state
	tc-update-tool
	tc-write-misc
	kmod
	tc-enable-removable-disk
	android-tools
	logcat
	wayland
	weston-init
	weston-examples
	qtbase
	qtbase-plugins
	qtwayland
	qtwayland-plugins
	gstreamer1.0-meta-audio
	gstreamer1.0-meta-video
	gstreamer1.0-meta-extra
	packagegroup-pulseaudio-telechips
	kernel-modules-vpu
	kernel-module-ufsd
	sqlite3
	ttf-nanum-font
	tzdata
	tzdata-posix
	telechips-automotive-linux-apps
	kernel-modules
	glibc-gconv-utf-16
	glibc-gconv-utf-32
	glibc-gconv-euc-kr
	glibc-gconv-libksc

3.2 Installed Packages

Packages	Version	Licenses	Detail packages
acl	2.2.52	COPYING COPYING.LGPL generic_GPLv2 generic_LGPLv2.1 recipeinfo	libacl1
alsa-lib	1.1.4.1	COPYING generic_GPLv2 generic_LGPLv2.1 recipeinfo socket.c	alsa-conf
			libasound2
alsa-plugins	1.1.4	attributes.m4 COPYING COPYING.GPL generic_GPLv2 generic_LGPLv2.1 rate_samplerate.c recipeinfo	libasound-module-pcm-pulse
			libasound-module-ctl-pulse
			libasound-module-conf-pulse
			alsa-plugins-pulseaudio-conf
alsa-state	0.2.0	COPYING.MIT generic_MIT recipeinfo	alsa-state
			alsa-states
alsa-utils	1.1.4	COPYING generic_GPLv2 recipeinfo utils.c	alsa-utils-aplay
			alsa-utils-amixer
			alsa-utils-aseqnet
			alsa-utils-alsactl
			alsa-utils-iecset
			alsa-utils-alsaucm
			alsa-utils-midi
			alsa-utils-speakertest
			alsa-utils-alsatplg
			alsa-utils-alsamixer
			alsa-utils-aseqdump
			alsa-utils-alsaloop
			alsa-utils-aconnect
			alsa-utils
android-tools	4.2.2+git2013021 8+3ubuntu13	Apache-2.0 BSD-2-Clause BSD-3-Clause copyright generic_Apache-2.0 generic_BSD-2-Clause generic_BSD-3-Clause generic_GPL-2.0 GPL-2.0 recipeinfo	android-tools
android-tools-conf	1.0	generic_MIT MIT recipeinfo	android-tools-conf
attr	2.4.47	attr.c COPYING generic_GPLv2 generic_LGPLv2.1 libattr.c recipeinfo	libattr1
audiomanager	7.0	generic_MPLv2 LICENCE recipeinfo	audiomanager
base-files	3.0.14	generic_GPLv2 GPL-2 recipeinfo	base-files
bash	4.4	COPYING generic_GPLv3 recipeinfo	bash
busybox	1.24.1	generic_bzip2 generic_GPLv2 LICENSE recipeinfo	busybox-udhcpc
			busybox-syslog
			busybox
bzip2	1.0.6	generic_bzip2 LICENSE recipeinfo	libbz2-1
ca-certificates	20170717	copyright generic_GPL-2.0 generic_MPL-2.0 recipeinfo	ca-certificates
cairo	1.14.10	COPYING generic_GPLv3 generic_LGPLv2.1 generic_MPL-1 recipeinfo	libcairo2
curl	7.58.0	COPYING generic_MIT recipeinfo	libcurl4
customize-rootfs	1.0.0	generic_Telechips recipeinfo Telechips	customize-rootfs
dbus	1.10.20	COPYING dbus.h generic_AFL-2 generic_GPLv2 recipeinfo	dbus-1
			libdbus-1-3
dlt-daemon	2.11.1	generic_MPLv2 LICENSE.txt MPL.txt recipeinfo	dlt-daemon
dnsmasq	2.71	COPYING COPYING-v3 generic_GPLv2 generic_GPLv3 recipeinfo	dnsmasq
e2fsprogs	1.43.5	COPYING e2p.h et_name.c ext2fs.h generic_BSD generic_GPLv2 generic_LGPLv2 generic_MIT NOTICE recipeinfo ss.h uuid.h.in	e2fsprogs-e2fsck
			libcom-err2
			libe2p2
			e2fsprogs-mke2fs
			libext2fs2
expat	2.2.3	COPYING generic_MIT recipeinfo	libexpat1
flac	1.3.2	all.h.0 all.h.1 COPYING.FDL COPYING.GPL COPYING.LGPL COPYING.Xiph generic_BSD	libflac8

Packages	Version	Licenses	Detail packages
		generic_GFDL-1.2 generic_GPLv2 generic_LGPLv2.1 main.c Makefile.am recipeinfo	
fontconfig	2.12.4	COPYING fccache.c fcfreetype.c generic_MIT generic_MIT-style generic_PD recipeinfo	fontconfig-utils
			libfontconfig1
freetype	2.8	FTL.TXT generic_FreeType generic_GPLv2 GPLv2.TXT LICENSE.TXT recipeinfo	libfreetype6
gcc-runtime	linaro+7.2	COPYING COPYING3 COPYING3.LIB COPYING.LIB COPYING.RUNTIME generic_GPL-3.0-with-GCC-exception recipeinfo	libstdc++6
gdk-pixbuf	2.36.8	COPYING gdk-pixbuf.h generic_LGPLv2 recipeinfo	libgdk-pixbuf-2.0-locale-ko
			libgdk-pixbuf-2.0-0
			libgdk-pixbuf-2.0-locale-en-gb
glib-2.0	2.52.3	COPYING.0 COPYING.1 COPYING.2 generic_BSD generic_LGPLv2 generic_PD glib.h gmodule.h pcre.h recipeinfo	libglib-2.0-locale-ko
			libglib-2.0-locale-en-gb
			libglib-2.0-0
glibc	linaro+2.20	COPYING COPYING.LIB COPYRIGHT generic_GPLv2 generic_LGPLv2.1 LICENSES recipeinfo	libc6
			ldd
glibc-locale	linaro+2.20	generic_GPLv2 generic_LGPLv2.1 GPL-2.0 LGPL-2.1 recipeinfo	glibc-binary-localedata-ko-kr.euc-kr
			glibc-binary-localedata-en-us.iso-8859-1
			locale-base-en-us
			glibc-binary-localedata-ko-kr
			glibc-gconv-libksc
			glibc-binary-localedata-en-gb
			locale-base-en-us.iso-8859-1
			glibc-gconv-euc-kr
			glibc-binary-localedata-en-gb.iso-8859-1
			glibc-gconv-utf-16
			locale-base-ko-kr.euc-kr
			glibc-gconv-utf-32
			locale-base-ko-kr
			locale-base-en-gb.iso-8859-1
			locale-base-en-gb
			glibc-binary-localedata-en-us
			glibc-gconv
			glibc-locale-en-gb
			glibc-locale-ko
glib-networking	2.50.0	COPYING generic_LGPLv2 recipeinfo	glib-networking-locale-ko
			glib-networking-locale-en-gb
			glib-networking
gmp	6.1.2	COPYING COPYING.LESSERv3 COPYINGv2 generic_GPLv2 generic_LGPLv3 recipeinfo	libgmp10
gnutls	3.3.17.1	COPYING COPYING.LESSER generic_GPLv3 generic_LGPLv2.1 recipeinfo	libgnutls28
gstreamer1.0	1.10.4	COPYING generic_LGPLv2 gst.h recipeinfo	gstreamer1.0
			gstreamer1.0-locale-en-gb
gstreamer1.0-meta-base	1.0	generic_MIT recipeinfo	gstreamer1.0-meta-audio
			gstreamer1.0-meta-extra
			gstreamer1.0-meta-base
			gstreamer1.0-meta-video
gstreamer1.0-omx	1.2.0	COPYING generic_LGPLv2.1 gstomx.h recipeinfo	gstreamer1.0-omx
gstreamer1.0-plugins-bad	1.10.4	COPYING COPYING.LIB crc32.h filters.h generic_GPLv2 generic_LGPLv2 generic_LGPLv2.1 recipeinfo	gstreamer1.0-plugins-bad-sbc
			gstreamer1.0-plugins-bad-neonhttpsrc
			libgstadaptivedemux-1.0-0
			gstreamer1.0-plugins-bad-curl
			gstreamer1.0-plugins-bad-videoparsersbad
			gstreamer1.0-plugins-bad-adpcmdec
			gstreamer1.0-plugins-bad-mpegtsdemux

Packages	Version	Licenses	Detail packages
			gstreamer1.0-plugins-bad-hls
			gstreamer1.0-plugins-bad-smoothstreaming
			gstreamer1.0-plugins-bad-bz2
			libgsturidownloader-1.0-0
			libgstcodecparsers-1.0-0
			libgstmpegts-1.0-0
			gstreamer1.0-plugins-bad-locale-en-gb
gstreamer1.0-plugins-base	1.10.4	COPYING COPYING.LIB coverage-report.pl generic_GPLv2 generic_LGPLv2 recipeinfo	libgstvideo-1.0-0
			libgstsdp-1.0-0
			libgsttag-1.0-0
			gstreamer1.0-plugins-base-locale-en-gb
			gstreamer1.0-plugins-base-audioresample
			gstreamer1.0-plugins-base-ogg
			libgstaudio-1.0-0
			libgstapp-1.0-0
			gstreamer1.0-plugins-base-vorbis
			gstreamer1.0-plugins-base-playback
			gstreamer1.0-plugins-base-videoconvert
			gstreamer1.0-plugins-base-typefindfunctions
			libgstrtsp-1.0-0
			gstreamer1.0-plugins-base-pango
			libgstriff-1.0-0
			libgstpbutils-1.0-0
			gstreamer1.0-plugins-base-subparse
			gstreamer1.0-plugins-base-alsa
			gstreamer1.0-plugins-base-audioconvert
			libgstallocators-1.0-0
			gstreamer1.0-plugins-base-app
			gstreamer1.0-plugins-base-videoscale
			gstreamer1.0-plugins-base-volume
			libgstrtp-1.0-0
gstreamer1.0-plugins-good	1.10.4	COPYING coverage-report.pl generic_GPLv2 generic_LGPLv2.1 recipeinfo rganalysis.c	gstreamer1.0-plugins-good-rtp
			gstreamer1.0-plugins-good-avi
			gstreamer1.0-plugins-good-alaw
			gstreamer1.0-plugins-good-wavparse
			gstreamer1.0-plugins-good-png
			gstreamer1.0-plugins-good-speex
			gstreamer1.0-plugins-good-audioparsers
			gstreamer1.0-plugins-good-udp
			gstreamer1.0-plugins-good-video4linux2
			gstreamer1.0-plugins-good-souphttpsrc
			gstreamer1.0-plugins-good-autodetect
			gstreamer1.0-plugins-good-rtpmanager
			gstreamer1.0-plugins-good-rtsp
			gstreamer1.0-plugins-good-locale-en-gb
			gstreamer1.0-plugins-good-apetag
			gstreamer1.0-plugins-good-taglib
			gstreamer1.0-plugins-good-pulse
			gstreamer1.0-plugins-good-mulaw
			gstreamer1.0-plugins-good-id3demux
			gstreamer1.0-plugins-good-isomp4
			gstreamer1.0-plugins-good-icydemux
			gstreamer1.0-plugins-good-matroska
			gstreamer1.0-plugins-good-jpeg
			gstreamer1.0-plugins-good-gdkpixbuf
gstreamer1.0-plugins-telechips	1.2.4	generic_LGPLv2.1 generic_Telechips gst_tc_demux_base.h LGPL-2.1 recipeinfo	gstreamer1.0-plugins-telechips-tcdemux
harfbuzz	1.4.8	COPYING.0 COPYING.1 generic_MIT recipeinfo	libharfbuzz0
kbd	2.0.4	COPYING generic_GPLv2 recipeinfo	kbd-consolefonts
			kbd-keymaps
			kbd

Packages	Version	Licenses	Detail packages
kmod	24+git0+ef4257b 59c	COPYING generic_GPL-2.0 generic_LGPL-2.1 recipeinfo	kmod
			libkmod2
libcap	2.25	generic_BSD generic_GPLv2 License recipeinfo	libcap2
libcdk-audio	1.0.0	generic_Telechips recipeinfo tcc_audio_interface.h	libcdk-audio
libcdk-demux	1.0.0	generic_Telechips recipeinfo tcc_demux_interface.h	libcdk-demux
libdrm	2.4.83	generic_MIT recipeinfo xf86drm.c	libdrm2
liberation-fonts	2.00.1	generic_OFL-1.1 LICENSE recipeinfo	liberation-fonts
libevdev	1.5.7	COPYING generic_MIT-X libevdev.h recipeinfo	libevdev
libffi	3.2.1	generic_MIT LICENSE recipeinfo	libffi6
libgcc	linaro+7.2	COPYING COPYING3 COPYING3.LIB COPYING.LIB COPYING.RUNTIME generic_GPL-3.0-with-GCC-exception generic_GPLv3 recipeinfo	libgcc1
libgudev	231	COPYING generic_LGPLv2.1 recipeinfo	libgudev-1.0-0
libinput	1.5.0	COPYING generic_MIT recipeinfo	libinput
libjpeg-turbo	1.5.2	cdjpeg.h djpeg.c generic_BSD-3-Clause jpeglib.h recipeinfo	libjpeg62
liblog	1.0.0	Apache-2.0 generic_Apache-2.0 recipeinfo	liblog
libogg	1.3.2	COPYING generic_BSD ogg.h recipeinfo	libogg0
libomxil-telechips	1.0.0	generic_LGPLv2.1 generic_Telechips LGPL-2.1 recipeinfo tcc_audio_common.h tcc_video_common.h	libomxil-telechips
libpam	1.3.0	COPYING generic_BSD generic_GPLv2 recipeinfo	pam-plugin-mail
			pam-plugin-env
			pam-plugin-limits
			libpam-locale-ko
			pam-plugin-nologin
			pam-plugin-unix
			pam-plugin-faildelay
			pam-plugin-lastlog
			pam-plugin-loginuid
			pam-plugin-rootok
			pam-plugin-permit
			libpam
			pam-plugin-keyinit
			pam-plugin-securetty
			pam-plugin-deny
			libpam-runtime
			libpam-locale-en-gb
			pam-plugin-shells
			pam-plugin-motd
			pam-plugin-warn
			pam-plugin-group
libpcre	8.41	generic_BSD LICENCE recipeinfo	libpcre1
libpng	1.6.31	generic_Libpng LICENSE png.h recipeinfo	libpng16-16
libproxy	0.4.14	COPYING generic_LGPLv2.1 proxy.c recipeinfo	libproxy
libsamplerate0	0.1.9	COPYING generic_BSD-2-Clause recipeinfo samplerate.c	libsamplerate0
libsndfile1	1.0.28	COPYING generic_LGPLv2.1 recipeinfo	libsndfile1
libsoup-2.4	2.58.2	COPYING generic_LGPLv2 recipeinfo	libsoup-2.4
			libsoup-2.4-locale-ko
			libsoup-2.4-locale-en-gb
libtcconnect	1.0.0	generic_Telechips recipeinfo TCConnectInterface.h	libtcconnect1
libtcdbgen	1.0.0	generic_Telechips recipeinfo TCDBGen.h	libtcdbgen1
libtcguiutils	1.0.0	generic_Telechips LibTCQtGlobal.h recipeinfo	libtcguiutils1

Packages	Version	Licenses	Detail packages
libtcutils	1.0.0	generic_Telechips recipeinfo TCDBusRawAPI.h	libtcutils1
libtc-wifi	1.0.0	generic_Telechips recipeinfo Telechips	libtc-wifi
libtool	2.4.6	COPYING COPYING.LIB generic_GPLv2 generic_LGPLv2.1 recipeinfo	libltdl7
libvorbis	1.3.5	COPYING generic_BSD recipeinfo vorbisenc.h	libvorbis
libxkbcommon	0.7.1	generic_MIT generic_MIT-style LICENSE recipeinfo	libxkbcommon0
libxml2	2.9.5	Copyright generic_MIT hash.c list.c recipeinfo trio.c	libxml2
linux-telechips	4.4.120	COPYING generic_GPLv2 recipeinfo	kernel-module-vpu-4.4.120-tcc
			kernel-module-mousedev-4.4.120-tcc
			kernel-module-tcc-snd-card-4.4.120-tcc
			kernel-modules
			kernel-image-4.4.120-tcc
			kernel-module-tcc-audio-chmux-4.4.120-tcc
			kernel-module-tcc-spdif-4.4.120-tcc
			kernel-image-image-4.4.120-tcc
			kernel-module-hevc-dev-4.4.120-tcc
			kernel-4.4.120-tcc
			kernel-module-usb-storage-4.4.120-tcc
			kernel-module-snd-soc-ak4601-4.4.120-tcc
			kernel-module-tcc-adma-pcm-4.4.120-tcc
			kernel-module-tcc-cdif-4.4.120-tcc
			kernel-module-jpu-dev-4.4.120-tcc
			kernel-module-sd-mod-4.4.120-tcc
			kernel-module-sg-4.4.120-tcc
			kernel-module-scsi-mod-4.4.120-tcc
			kernel-module-tcc-i2s-4.4.120-tcc
logcat	1.0.0	Apache-2.0 generic_Apache-2.0 recipeinfo	logcat
mtdev	1.1.5	COPYING generic_MIT recipeinfo	mtdev
ncurses	6.0+20171125	generic_MIT recipeinfo version.c	libformw5
			libncurses5
			libtinfo5
			libncursesw5
			ncurses-terminfo-base
			libmenuw5
			libpanelw5
neon	0.30.2	COPYING.LIB generic_LGPLv2 ne_utils.h recipeinfo	libneon27
netbase	5.4	copyright generic_GPLv2 recipeinfo	netbase
nettle	3.3	COPYING.LESSERv3 COPYINGv2 generic_GPLv2 generic_LGPLv3 recipeinfo serpent-decrypt.c serpent-set-key.c	nettle
openssl	1.0.2o	generic_openssl LICENSE recipeinfo	openssl-conf
			openssl
			libcrypto1.0.2
			libssl1.0.2
orc	0.4.27	COPYING generic_BSD-2-Clause generic_BSD-3-Clause recipeinfo	liborc-0.4-0
os-release	1.0	generic_MIT recipeinfo	os-release
packagegroup-core-boot-telechips-ivi	1.0	generic_MIT recipeinfo	packagegroup-core-boot-telechips-ivi
packagegroup-pulseaudio-telechips	1.0	generic_GPLv2 generic_LGPLv2.1 recipeinfo	packagegroup-pulseaudio-telechips
pango	1.40.6	COPYING generic_LGPLv2.0 recipeinfo	pango
pixman	0.34.0	COPYING generic_MIT generic_MIT-style generic_PD pixman-arm-neon-asm.h pixman-matrix.c recipeinfo	libpixman-1-0

Packages	Version	Licenses	Detail packages
prebuilt-modules	1.0.0	generic_Telechips recipeinfo Telechips	kernel-module-jpu-lib-4.4.120-tcc
			kernel-module-vpu-lib-4.4.120-tcc
			kernel-module-hevc-lib-4.4.120-tcc
			kernel-modules-vpu
			prebuilt-modules
procps	3.3.12	COPYING COPYING.LIB generic_GPLv2 generic_LGPLv2 recipeinfo	procps
pulseaudio	10.0	adrian-aec.h adrian-license.txt AGPL biquad.h generic_BSD-3-Clause generic_LGPLv2.1 generic_MIT GPL LGPL LICENSE LICENSE.WEBKIT qpaeq recipeinfo resampler.h reserve.h rtkit.h	pulseaudio-module-cli-protocol-unix
			pulseaudio
			pulseaudio-module-udev-detect
			libpulsecore
			pulseaudio-module-detect
			pulseaudio-module-augment-properties
			pulseaudio-module-native-protocol-unix
			pulseaudio-module-null-sink
			pulseaudio-module-stream-restore
			pulseaudio-module-filter-heuristics
			pulseaudio-module-alsa-sink
			pulseaudio-module-rescue-streams
			pulseaudio-module-remap-sink
			pulseaudio-module-default-device-restore
			pulseaudio-lib-alsa-util
			pulseaudio-lib-protocol-native
			libpulse0
			pulseaudio-module-role-cork
			pulseaudio-module-card-restore
			pulseaudio-locale-ko
			pulseaudio-module-device-restore
			pulseaudio-module-intended-roles
			pulseaudio-module-filter-apply
			pulseaudio-module-always-sink
			pulseaudio-lib-cli
			pulseaudio-misc
			pulseaudio-lib-protocol-cli
			pulseaudio-module-position-event-sounds
			pulseaudio-module-alsa-card
			libpulsecommon
			pulseaudio-server
			pulseaudio-module-switch-on-port-available
			pulseaudio-module-suspend-on-idle
			pulseaudio-module-alsa-source
qtbase	5.6.3+git0+e6f8b072d2	generic_BSD generic_GFDL-1.3 generic_LGPL-2.1 generic_LGPL-3.0 generic_The-Qt-Company-Qt-LGPL-Exception-1.1 LGPL_EXCEPTION.txt LICENSE.FDL LICENSE.GPLv3 LICENSE.LGPLv21 LICENSE.LGPLv3 recipeinfo	qtbase
			qtbase-plugins
qtdeclarative	5.6.3+git0+bb01612a88	generic_BSD generic_GFDL-1.3 generic_LGPL-2.1 generic_LGPL-3.0 generic_The-Qt-Company-Qt-LGPL-Exception-1.1 LGPL_EXCEPTION.txt LICENSE.FDL LICENSE.GPLv3 LICENSE.LGPLv21 LICENSE.LGPLv3 recipeinfo	qtdeclarative-qmlplugins
			qtdeclarative
			qtdeclarative-plugins
qtwayland	5.6.3+git0+70575643cf	generic_BSD generic_LGPL-2.1 generic_LGPL-3.0 generic_The-Qt-Company-Qt-LGPL-Exception-1.1 LGPL_EXCEPTION.txt LICENSE.FDL LICENSE.GPLv3 LICENSE.LGPLv21 LICENSE.LGPLv3 recipeinfo	qtwayland
			qtwayland-plugins
qtxmlpatterns	5.6.3+git0+50582280b1	generic_BSD generic_GFDL-1.3 generic_LGPL-2.1 generic_LGPL-3.0	libqt5xmlpatterns5

Packages	Version	Licenses	Detail packages
		generic_The-Qt-Company-Qt-LGPL-Exception-1.1 LGPL_EXCEPTION.txt LICENSE.FDL LICENSE.GPLv3 LICENSE.LGPLv21 LICENSE.LGPLv3 recipeinfo	
rng-tools	5.0	COPYING generic_GPLv2 recipeinfo	rng-tools
sbc	1.3	COPYING COPYING.LIB generic_GPLv2 generic_LGPLv2.1 recipeinfo sbcenc.c sbc.h	libsbc1
shadow	4.2.1	COPYING generic_Artistic-1.0 generic_BSD passwd.c recipeinfo	shadow-locale-ko shadow-base
shadow-securetty	4.2.1	COPYING.MIT generic_MIT recipeinfo	shadow-securetty
shared-mime-info	1.8	COPYING generic_LGPLv2 recipeinfo	shared-mime-info
speex	1.2.0	COPYING generic_BSD recipeinfo speex.h	libspeex1
speexdsp	1.2rc3	COPYING generic_BSD recipeinfo	libspeexdsp1
sqlite3	3.20.0	generic_PD recipeinfo sqlite3.h	sqlite3 libsqlite3-0
start-stop-daemon	1.17.25	generic_PD recipeinfo start-stop-daemon.c	start-stop-daemon
systemd	234	generic_GPLv2 generic_LGPLv2.1 LICENSE.GPL2 LICENSE.LGPL2.1 recipeinfo	systemd-vconsole-setup libudev1 udev systemd-container systemd-locale-ko systemd libsystemd0
systemd-compat-units	1.0	generic_MIT recipeinfo	systemd-compat-units
systemd-serialgetty	1.0	generic_GPLv2 GPL-2.0 recipeinfo	systemd-serialgetty
taglib	1.11.1	audioproperties.h COPYING.LGPL COPYING.MPL generic_LGPLv2.1 generic_MPL-1 recipeinfo	libtag1
tc-bsp-utils	1.0.0	generic_Telechips recipeinfo Telechips	tc-update-tool
tcc-wifi	1.0.0	generic_Telechips recipeinfo Telechips	kernel-module-bcmdhd-4.4.120-tcc tcc-wifi
tc-enable-removable-disk	1.0.0	generic_Telechips recipeinfo Telechips	tc-enable-removable-disk
tc-launcher	1.0.0	generic_Telechips Launcher.h recipeinfo	tc-launcher
tc-media-playback	1.0.0	generic_Telechips recipeinfo TCMultiMediaType.h	tc-media-playback
tc-wpa-supplicant	2.6	COPYING generic_BSD README.0 README.1 recipeinfo wpa_supplicant.c	tc-wpa-supplicant
tc-write-misc	1.0.0	generic_Telechips recipeinfo Telechips	tc-write-misc
telechips-automotive-linux-apps	1.0.0	recipeinfo	telechips-automotive-linux-apps
telechips-egl	1.0.0	ARM generic_ARM recipeinfo	libwayland-egl libgles2-telechips libmali-telechips libgles1-telechips libgbm libegl-telechips
tmplayer	1.0.0	generic_Telechips recipeinfo TMPlayer.h	tmplayer
tmplayer-gui	1.0.0	generic_Telechips MediaPlayer.h recipeinfo	tmplayer-gui
ttf-nanum-font	1.0	generic_NAVER generic_OFL-1.1 NAVER OFL-1.1 recipeinfo	ttf-nanum-font-myeongjo ttf-nanum-font-barun-gothic ttf-nanum-font-pen ttf-nanum-font ttf-nanum-font-brush ttf-nanum-font-gothic
tzdata	2018c	generic_BSD generic_BSD-3-Clause generic_PD LICENSE recipeinfo	tzdata-posix tzdata
udev-extraconf	1.1	COPYING.MIT generic_MIT recipeinfo	udev-extraconf
util-linux	2.3	COPYING.0 COPYING.1 COPYING.2 COPYING.BSD-3 COPYING.GPLv2 COPYING.LGPLv2.1 COPYING.UCB generic_BSD generic_GPLv2	util-linux-mount util-linux-fsck libuuid1 util-linux-agetty

Packages	Version	Licenses	Detail packages
		generic_LGPLv2.1 README.licensing recipeinfo	libmount1
			libblkid1
			util-linux-umount
			util-linux-mkfs
			util-linux-sulogin
volatile-binds	1.0	COPYING.MIT generic_MIT recipeinfo	volatile-binds
wayland	1.12.0	COPYING generic_MIT recipeinfo wayland-server.c	wayland
weston		compositor.c COPYING generic_MIT recipeinfo	weston-examples
			weston
weston-init	1.0	COPYING.MIT generic_MIT recipeinfo	weston-init
xkeyboard-config	2.21	COPYING generic_MIT generic_MIT-style recipeinfo	xkeyboard-config
			xkeyboard-config-locale-ko
			xkeyboard-config-locale-en-gb
xz	5.2.3	COPYING COPYING.GPLv2 COPYING.GPLv3 COPYING.LGPLv2.1 generic_GPL-3.0-with-autoconf-exception generic_GPLv2 generic_LGPLv2.1 generic_PD getopt.c recipeinfo	liblzma5
zlib	1.2.11	generic_Zlib recipeinfo zlib.h	libz1

4 QA RESULT

4.1 New QA Issues to be resolve next version

Priority	Summary	TIMS ID
Major	Content can not be played.	ID103A-46
	Display Black Screen when removing SD card after inserting.	ID103A-52
	No partial audio playback.	ID103A-44
	Seek delay(Over 3 secs)	ID103A-51
	UI does not work when pause and resume	ID103A-45
	Video abnormal output.	ID103A-49
	Video noise	ID103A-47
	Pop-Noise occurs temporarily when BT Call is received.	ID103A-55
Minor	USB UI disappears at the top when USB is disconnected	ID103A-54
	Vol Control UI does not match the actual Vol	ID103A-56

4.2 QA Issues compared to previous release(v3.0.1)

Priority	Summary	TIMS ID
Critical	System hang when unplugging USB during SD movie playback	ID103A-11
Major	~~LCD screen trembling phenomenon~~	~~ID103A-12~~
	When the audio / video is alternately playback, the video is playback from the beginning	ID103A-13
	~~Operate A/V Player after iPod Devices Connected.~~	~~ID103A-24~~
	Not operate USB Mouse after Bluetooth Menu entry.	ID103A-26
	~~Video Aging doesn't play video~~	~~ID103A-3~~
	~~Device connection status does not output Speaker after (iPod Device) reset action.~~	~~ID103A-33~~
	Call ended when External Device is connected during call	ID103A-34
	Unable to return to Launcher screen when USB or SD is ejected	ID103A-6
	Camera switch up and down during the booting up, the switch is down, camera won't turn off	ID103A-39
	~~Do not display video when specific Interlace video played~~	~~ID103A-40~~
	~~Do not display video when 4K HEVC video played~~	~~ID103A-41~~
	~~A temporary break when BT Audio music is played.~~	~~ID103A-43~~
	~~Temporarily unable to recognize SD card.~~	~~ID103A-42~~
Minor	~~No automatic playback on connection with iPod Devices power off.~~	~~ID103A-36~~
	Playback information not displayed.	ID103A-28
	Rear Camera Preview and CarPlay screen overlap	ID103A-32
	Not Operate Read/unread Menu after MAP Menu entry.	ID103A-35

DISCLAIMER

All information and data contained in this material are without any commitment, are not to be considered as an offer for conclusion of a contract, nor shall they be construed as to create any liability. Any new issue of this material invalidates previous issues. Product availability and delivery are exclusively subject to our respective order confirmation form; the same applies to orders based on development samples delivered. By this publication, Telechips, Inc. does not assume responsibility for patent infringements or other rights of third parties that may result from its use.

Further, Telechips, Inc. reserves the right to revise this publication and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes.
No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of Telechips, Inc.
This product is designed for general purpose, and accordingly customer be responsible for all or any of intellectual property licenses required for actual application. Telechips, Inc. does not provide any indemnification for any intellectual properties owned by third party.
Telechips, Inc. can not ensure that this application is the proper and sufficient one for any other purposes but the one explicitly expressed herein. Telechips, Inc. is not responsible for any special, indirect, incidental or consequential damage or loss whatsoever resulting from the use of this application for other purposes.

COPYRIGHT STATEMENT

Copyright in the material provided by Telechips, Inc. is owned by Telechips unless otherwise noted.
For reproduction or use of Telechips' copyright material, permission should be sought from Telechips. That permission, if given, will be subject to conditions that Telechips' name should be included and interest in the material should be acknowledged when the material is reproduced or quoted, either in whole or in part. You must not copy, adapt, publish, distribute or commercialize any contents contained in the material in any manner without the written permission of Telechips. Trade marks used in Telechips' copyright material are the property of Telechips.

Important Notice

This material may include technology owned by the 3rd party licensor and the technology may be subject to its associated licenses. It is solely customer's responsibility to identify and comply with such licenses. No other licenses are granted or implied by Telechips with making available this material.

For customers who use licensed Codec ICs and/or licensed codec firmware of mp3:
"Supply of this product does not convey a license nor imply any right to distribute content created with this product in revenue-generating broadcast systems (terrestrial. Satellite, cable and/or other distribution channels), streaming applications(via internet, intranets and/or other networks), other content distribution systems(pay-audio or audio-on-demand applications and the like) or on physical media(compact discs, digital versatile discs, semiconductor chips, hard drives, memory cards and the like). An independent license for such use is required. For details, please visit http://mp3licensing.com".

For customers who use other firmware of mp3:
"Supply of this product does not convey a license under the relevant intellectual property of Thomson and/or Fraunhofer Gesellschaft nor imply any right to use this product in any finished end user or ready-to-use final product. An independent license for such use is required. For details, please visit http://mp3licensing.com".

For customers who use Digital Wave DRA solution:
"Supply of this implementation of DRA technology does not convey a license nor imply any right to this implementation in any finished end-user or ready-to-use terminal product. An independent license for such use is required."

For customers who use DTS technology:
"This product made under license to certain U.S. patents and/or foreign counterparts."
"© 1996 – 2011 DTS, Inc. All rights reserved."

For customers who use Dolby technology:
"Supply of this Implementation of Dolby technology does not convey a license nor imply a right under any patent, or any other industrial or intellectual property right of Dolby Laboratories, to use this Implementation in any finished end-user or ready-to-use final product. It is hereby notified that a license for such use is required from Dolby Laboratories."

For customers who use Google technology:
"Copyright © 2013 Google Inc. All rights reserved."

For customers who use MS technology:
"This product is subject to certain intellectual property rights of Microsoft and cannot be used or distributed further without the appropriate license(s) from Microsoft."