TCCXXXX
TOUCH DRIVER
USER GUIDE

TCCXXXX_TOUCH_DRIVER_USER_GUIDE

Rev. 0.10

Feb. 24. 2012

Telechips

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Revision History

Date	Version	Description
2012-02-24	0.10	This document is a guide to the Touch Driver. Initial release

TABLE OF CONTENTS

Contents

1 Default Touch 1-1
2 Touch Config File 2-1
3 Multi Touch 3-1
4 Scroll & Flicking 4-1
4.1 Deceleration 4-1
5 Calibration 5-2
5.1 How not to perform receiver that check calibration data. 5-3

1 Default Touch

Telechips Android Platform has internal touch interface using ADC. It support resistive touch screen with 4-way.

TCC892X_EVM and M805_892x reference board use thid default adc touch basically and user can use other touch such using I2C interface.

2 Touch Config File (important option)

Android ICS platform must need touch config file.

Telechips SDK has that file in “device/telechips/tcc8920(or m805_892x)/” folder. And in “device_base.mk” file, that file is copied.

The file’s name must be “(touch driver name).idc”.(for example : touch driver name : tcc-ts, config file : tcc-ts.idc)

And the file can have various information about touch.

Following URL include manual of the file.

http://source.android.com/tech/input/touch-devices.html

3 Multi Touch (important option)

Andoird ICS platform must need touch permission file for multi touch.

Telechips SDK basically doen’t have these files. If you want to use multi touch, you should add follwing permission files.

```
PRODUCT_COPY_FILES += \

frameworks/base/data/etc/android.hardware.touchscreen.multitouch.xml:system/etc/permissions/and
roid.hardware.touchscreen.multitouch.xml \

frameworks/base/data/etc/android.hardware.touchscreen.multitouch.distinct.xml:system/etc/permis
sions/android.hardware.touchscreen.multitouch.distinct.xml
```

You should add above codes at “device_base.mk” file in device/telechips/tcc8920(or m805_892x) folder.

4 Scroll & Flicking

Scrolling and flicking is performed by motion event. They decide to scroll and flick after checking motion events in application layer. Web browser and basic program of android get default scrolling and flicking in android made by scroller class. It is changed by scroller configuration. Configuration has SCROLL_FRICTION, TOUCH_SLOP and etc. You can change scroll style through controlling that.

4.1 Deceleration

Deceleration is variable to control scroll amount when you are flicking. If you control this value , you can make more scroll or less scroll.

If you open frameworks/base/core/jave/android/widget/Scroller.jave file, you can find this.

```
public Scroller(Context context, Interpolator interpolator) {
    mFinished = true;
    mInterpolator = interpolator;
    float ppi = context.getResources().getDisplayMetrics().density * 160.0f;
    mDeceleration = computeDeceleration(ViewConfiguration.getScrollFriction());
    mFlywheel = flywheel;       }
```

getScrollFriction is member function of ViewConfiguration class. That function returns SCROLL_FRICTION value.

```
/**
 * The coefficient of friction applied to flings/scrolls.
 */
private static float SCROLL_FRICTION = 0.010f;          //0.015f;
```

You can find this at ViewConfiguration class. Default SCROLL_FRICTION is 0.015f. But Telechips Android use 0.010f. You can control deceleration to change this value.

5 Calibration

Touch Calibration function is added. But Touch Calibration option is not default.
If you want to use touch calibration **for only resistive touch**, you should do following sequence.

1. Open touch calibration option
   A. In "device/telechips/tcc8920(or m805_892x)/BoardConfig.mk

```
BOARD_CFLAGS := -DTCC892X

# Touch Calibration - use only pressure sensitive touch screen
TARGET_HAVE_TSLIB := true

TARGET_RECOVERY_UI_LIB := librecovery_ui_tcc8920
TARGET_RECOVERY_UPDATER_LIBS += librecovery_updater_telechips
TARGET_RECOVERY_INIT_RC := device/telechips/tcc8920/recovery/init.tcc8920.rc
```

If you open this file, you can see "TARGET_HAVE_TSLIB := true" code.
Release this code. And you should following commands:

```
$> touch external/tslib/*
$> touch external/tslib/src/*
$> touch frameworks/base/lib/ui/*
```

And rebuild.

After android image is downloaded, touch calibration is perform in first booting.

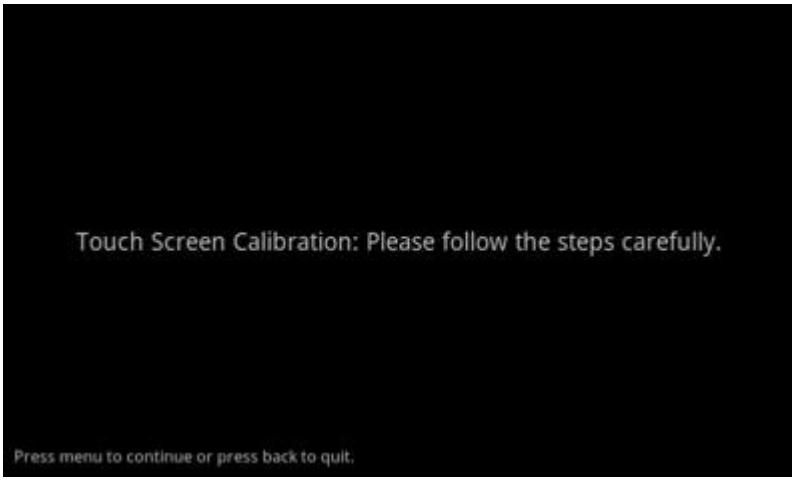

Figure 1. Calibration screen

If you push menu button, it starts calibration and if you push back button , it cancels calibration and is terminated.
When you perfom calibration, you should press proper point . If you press wrong point, it restarts calibration.
If you don't want to perform calibration or prevent calibration, you should change option in device/telechips/(model)/BoardConfig.mk" file. You can find **TARGET_HAVE_TSLIB := true** option in that file. If you change from true to false, touch calibration is not perfom. When you change that option, you should following commands:

```
$> touch external/tslib/*
$> touch external/tslib/src/*
$> touch frameworks/base/lib/ui/*
```

5.1 How not to perform receiver that check calibration data.

(To secure memory , you can turn off calibration . But you should tune touch driver in kernel)

If you apply following diff, you can prevent perform touch calibration in boot.

platform/packages/apps/TSCalibration/AndroidManifest.xml

```
--- a/AndroidManifest.xml
+++ b/AndroidManifest.xml
@@ -28,8 +28,6 @@
 -->
 <manifest xmlns:android="http://schemas.android.com/apk/res/android" package="touchsc
reen.test">
      <uses-permission android:name="android.permission.SET_ALWAYS_FINISH" />
-     <uses-permission android:name="android.permission.RECEIVE_BOOT_COMPLETED" />
-     <!--<uses-permission android:name="android.permission.REBOOT" />-->
      <application android:icon="@drawable/qcom" android:label="@string/app_name">
         <activity android:name=".CalibrationTest"
                   android:label="Calibration Test"
@@ -40,11 +38,5 @@
                 <category android:name="android.intent.category.LAUNCHER" />
             </intent-filter>
         </activity>
-        <receiver android:name="StartupIntentReceiver" >
-            <intent-filter>
-                 <action android:name="android.intent.action.BOOT_COMPLETED" />
-                 <category android:name="android.intent.category.HOME" />
-            </intent-filter>
-        </receiver>
     </application>
 </manifest>
```