

User Guide

For Low Memory Devices

TCCxxxx-Android_4.4(Kitkat)-V1.00E-Guide for Low Memory(512M) Devices

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TeleChips

Preliminary

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Revision History

Date	Version	Description
2014-02-25	1.00	Initial Release

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1 Introduction

This document helps how to optimize and configure TCC Android(Kitkat) SDK for low-memory devices.

Note>

1. This document just provides guideline for the optimizations and the configurations based on "<http://source.android.com/devices/low-ram.html>".
2. This document doesn't describe what they are and how efficient they are.
3. Once enabled, you should determine whether you use them discreetly.

2 How to configure

1. Enable Low Ram Device Flag
 - A. Kernel Configuration
None
 - B. Framework configuration
Add "PRODUCT_PROPERTY_OVERRIDES += ro.config.low_ram=true" to
"/device/telechips/tccXXXX/device.mk"
2. Tuning kernel/ActivityManager to reduce direct reclaim
 - A. Kernel Configuration
-> Kernel Features -> [*] Enable extra free Kbytes
 - B. Framework Configuration
Adjust the below values of "frameworks/base/core/res/res/values/config.xml"
<integer name="config_extraFreeKbytesAbsolute">-1</integer> or
<integer name="config_extraFreeKbytesAdjust">0</integer>
3. Swap to zRAM
 - A. Kernel Configuration
-> General Setup -> [*] Support for paging of anonymous memory (swap)
-> General Setup -> [*] Control Group support -> [*] Memory Resource Controller
for Control Groups
-> General Setup -> [*] Control Group support -> [*] Memory Resource Controller
Swap Extension
-> Device Drivers -> [*] Staging drivers -> [*] Compressed RAM block device
support
 - B. Framework Configuration
Add "/dev/block/zram0 none swap defaults zramsize=134217728" to
"/device/telechips/tccXXXX/fstab.tccXXXX"
Add "swapon_all /fstab.tccXXXX" to following "mount_all /fstab.tccXXXX" of
"/device/telechips/tccXXXX/init.tccXXXX.rc"
4. Kernel Samepage Merging (KSM)
 - A. Kernel Configuration
-> Kernel Features - Enable KSM for page merging
 - B. Framework Configuration
Add below codes to "device/telechips/tccXXXX/init.tccXXXX.rc"
write /sys/kernel/mm/ksm/pages_to_scan 100
write /sys/kernel/mm/ksm/sleep_millisecs 500
write /sys/kernel/mm/ksm/run 1