

Inforce 6540

Android Software Release Note Release V1.6

002972 Rev A

January 11, 2017

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1. INTRODUCTION

1.1 PURPOSE

The Inforce 6540 is a full-featured Pico-ITX Single Board Computer that is powered by Snapdragon™ 805 APQ8084 SoC. This document describes the feature set supported on Android BSP Software Release Version 1.6 running Lollipop 5.0.2 on Inforce 6540 development platform from Inforce Computing.



NOTE

It is not recommended to erase or modify any of the dedicated partitions in the on-board eMMC. Modifying may cause the board to no longer boot. If the eMMC partitions have been erased or partition table has been corrupted, the board would have to be sent back to Inforce through RMA.

1.2 SCOPE

This document describes the following:

- A description of the supported software capabilities and features
- Any known issues/limitations in the release

Software Platform Version

The following software platforms are supported in this release:

- Linux Kernel – Version 3.10.40
- Android Lollipop – Version 5.0.2

Memory Platform Information

The following memory has been validated in this release:

- 2GB (single chip)

Instructions to build and install this software release are not part of this document but are provided in the 'Android Programming Guide' available on Techweb.

1.3 INTENDED AUDIENCE

This document is meant for Android developers and practitioners who intend to try out the Inforce 6540 platform. It is not meant for general audiences.

1.4 ORGANIZATION

This document is organized as follows:

- **Section 1. Introduction:** This section describes the purpose, scope and structure of this document.
- **Section 2. Documents:** This section lists other documents that either supercede or supplement this document.
- **Section 3. Software Release Functional Description:** This section describes the Android BSP functional capabilities.
- **Section 4. New Feature:** This section describes the new features introduced in this release.
- **Section 5. Bugs:** This section describes known issues with this software release.

2. DOCUMENTS

This section lists any parent and/or supplementary documents for the Inforce 6540 development platform. Unless stated otherwise, applicable documents supercede this document and reference documents provide background and supplementary information.

2.1 APPLICABLE DOCUMENTS

Inforce Computing Purchase and Software License Agreement for the Inforce 6540 development platform.

2.2 REFERENCE DOCUMENTS

- Android Programming Guide
- Inforce 6540 User Guide

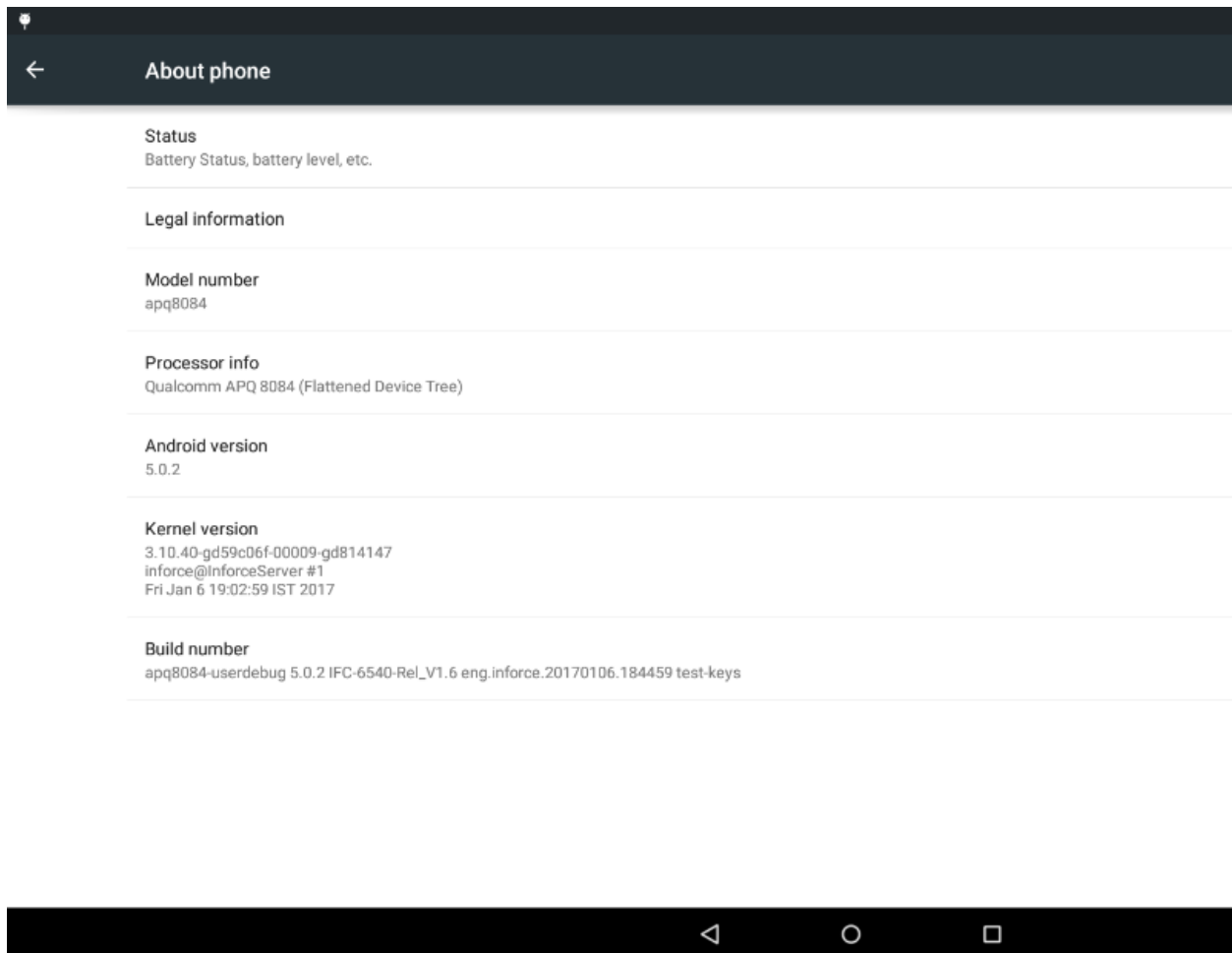
3. SOFTWARE RELEASE FUNCTIONAL DESCRIPTION

3.1 INTRODUCTION

This section describes the features and capabilities of Android BSP Software Release Version 1.6.

3.2 SOFTWARE RELEASE IDENTIFICATION

This Software Release Version 1.6 is based on Lollipop 5.0.2 for use with the Inforce 6540 development platform (CAF tag LA.BF.2.1-02010-8084.0 release) with adaptations and customizations from Inforce Computing.



3.3 SOFTWARE RELEASE PACKAGE

This software release package consists of the following items:

- **Binaries** – Prebuilt binary files that can be flashed directly to the Inforce 6540 development platform.
- **Inforce Computing Patches** – These are adaptations and customizations done by Inforce Computing to ensure that the software works on the Inforce 6540 development platform.
- **README.txt** – Instructions for using the source code and release.

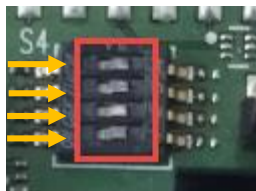


NOTE

Flashing the Metabinaries

- *For moving from Android KitKat 4.4.2/4.4.4 to Android Lollipop 5.0.2, the following metabinaries need to be flashed:*
 - *NON-HLOS*
 - *rpm.mbn*
 - *tz.mbn*
- *Use the following commands to flash the metabinaries present in the BSP:*

```
adb reboot bootloader
./meta_flashall.sh      (for Linux)
meta_flashall.bat      (for Windows)
```
- *If you intend to move back to Android KitKat 4.4.2/4.4.4, these metabinaries (corresponding to 4.4.2/4.4.4) need to be reflashed. These metabinaries are available on Inforce Techweb under Inforce 6540 software.*
- *Ensure the Boot Sel switch position (S4) is 0-0-0-0 as shown below.*



4. FEATURES OF THE RELEASE

4.1 FEATURES SUPPORTED IN THIS RELEASE

The following features are supported in this release:

1. **Android Lollipop 5.0.2:** This release is based on Android Lollipop 5.0.2.



NOTE

Open JDK Version 1.7 is needed to initialize the build.

2. **USB 2.0:** USB-based input devices (Mouse, Keyboard) have been validated in this release.
3. **USB 3.0:** USB-based input devices (Mouse, Keyboard) have been validated in this release.
4. **USB Camera:** This release is validated for 1080p image capture and preview using the Microsoft LifeCam HD 5000.
5. **USB Mass Storage:** This release was validated for USB mass storage.
6. **Wi-Fi:** This release was validated for Wi-Fi client functionality.
7. **SATA:** Access to SATA-based storage device has been validated in this release.



NOTE

Please connect the SATA device to the board, and then power ON the board. Execute below commands to mount the SATA device for ext4 file system:

```
adb root
adb remount
adb shell
mount -t ext4 /dev/block/sda1 /mnt
```

8. **Micro SD Card Interface:** Access to micro SD card interface has been validated.
9. **Gigabit Ethernet:** This release supports Gigabit Ethernet. For usage, please refer to **Enabling Ethernet** under **NOTE**.
10. **Serial UART:** This release supports serial UART.
11. **Bluetooth 4.1 LTE:** This release was validated for Bluetooth functionality. However, low-energy device was not validated in this release.
12. **Analog Audio:** This release supports microphone input and headset output.
13. **CPU Frequency:** This release supports CPU core frequency of 2.7GHz.
14. **HDMI Display and Audio:** 1080p video playback with audio has been validated in this release.
15. **Display:** This release supports HDMI full-screen display, by default.

**NOTE**

- **MIPI Truly Display [ACC-1B30]:** Remove the following kernel patches to get MIPI Truly as primary.

0009-apq8084-mdss-hdmi-4k-hdmi-stable.patch

0008-HDMI-Full-screen-1080p.patch

0007-Revert-MIPI-Patch-to-fix-mipi-truly-display-issue-to.patch

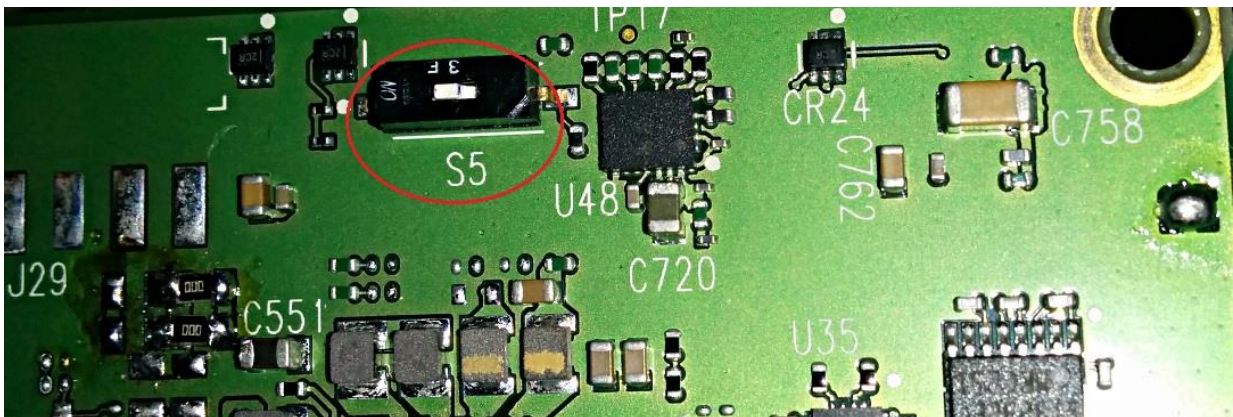
0006-MIPI-Enabling-JDI-on-top-of-Truly.patch

16. **Hexagon SDK Package Update:** This release was validated for Hexagon SDK package update.

17. **GPS:** This release was validated for GPS feature.

18. **Camera Sensor:** This release was validated for MIPI CSI camera interface using ACC-1H30 accessory for H.264 recording of 4K@24fps resolution.

19. **Accelerometer and Gyroscope Sensors:** This release was validated for Accelerometer and Gyroscope sensors using QSensor Test application. These sensors will function when the S5 switch on the board is turned ON as shown in the screenshot below.



**NOTE****1) Enabling Ethernet**

- Extract *IFC65XX_eth0_AD_5.0_880389_Ver2.0* file provided along with the *IFC6540_AndroidBSP_880374_RelV1.6* package.
- Open *eth0.sh* file using Notepad on Windows or Gedit on Linux platform.

**NOTE**

Open the *eth0.sh* file only with Notepad. Do not use WordPad as this will corrupt the file.

- Edit the MAC address with the one provided on the board.
E.g., `netcfg eth0 hwaddr 58:FC:08:40:22:F5`
- Save the file.
- Ensure that Wi-Fi is turned OFF before proceeding to the next step.
- Execute the following commands on the Linux Terminal or Windows Command prompt to enable Ethernet:

```
adb root
adb remount
```
- Push the *eth0.sh* to the board using the following commands on Linux Terminal or Windows Command prompt:

```
adb push eth0.sh /persist/
```
- Make sure the Ethernet RJ45 cable is plugged into the device.
- Reboot the board using the following command:

```
adb reboot
```

4.2 NEW FEATURES OF THIS RELEASE

This release supports the following new features:

- **Ultra HD HDMI display with Audio:** This release is validated for HDMI output resolutions up to and including 4K. H.265 decode of 4K@30 along with audio playback.
- **FastCV SDK:** This release enables the usage of FastCV SDK 1.7 package.
- **Adreno SDK:** This release enables the usage of Adreno SDK.

5. BUGS

5.1 KNOWN ISSUES

There are no known bugs.

5.2 FIXED

- Ethernet script runs automatically once pushed.
- GPS works out of the box.

5.3 WITHDRAWN

This section is not applicable for this release.

6. LIMITATIONS

There are no known limitations.

7. CONTACT INFORMATION

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