BlackBerry Passport

Android Conversion Procedure for Retail Devices

Introduction and Warnings

This documentation has been created to help beginners who are willing to do this conversion for their BlackBerry Passport devices, it is important to note that this guide is not a completely safe method as it requires soldering. It must be understood that all procedures mentioned could have a potential irreversible damage done to the device and the author of this document bears no responsibility for it.

Currently, BlackBerry Passport devices with hardware revision 5 and later are supported, you can check your hardware revision using Sachesi software, an implementation for older revisions will be available soon.

Additionally, if you have a BlackBerry Passport prototype running on Android, you can flash the new ROM directly to the phone, skipping straight to the Finishing up section of this document.

Prerequisites

- **Computer running Linux that has an SD/Micro-SD card reader with MMC support**
- **Micro-soldering station, or a person who can do micro-soldering**
- **eMMC to SD/Micro-SD adapter**
- **mmc-utils software for Linux, ADB tools for Linux, Imggen, Phone Software Bundle**
- **New eMMC chip (check Recommendations)**

Recommendations

Checking MMC support for your computer

Open the specifications sheet for your exact model and check whether it supports MMC protocol via SD. Your SD card adapter must be directly wired to your computer (example – Built-in SD reader), instead of using USB protocol (example – SD to USB adapters).

Micro-soldering

If you are not experienced in micro-soldering, find a service that would remove the eMMC chip from your phone, this is not a beginner friendly procedure and can easily damage your device. It is important to note that the front camera is near the chip and there is a chance of damaging it as well.

eMMC to SD/Micro-SD adapter

If you are experienced in micro-soldering, get an eMMC153 to SD/Micro-SD adapter, otherwise, as of this moment, you can get an eMMC153/169 adapter for T48 programmers and wire it to an SD reader on your computer, or wire it to an SD card breakout board(BGA153/169). A new adapter is in the works and a link for it will be published here once it is ready.

mmc-utils Software, ADB tools for Linux, Imggen, Phone Software Bundle

Install mmc-utils software on your Linux by entering `sudo apt-get install mmc-utils` command in a Terminal window. Install ADB tools by entering `sudo apt-get install android-sdk-platform-tools` command in a Terminal window. Download Imggen, request access for Phone Software Bundle here.

New eMMC chip

Check Removing eMMC Write-Protection section of this document before disassembly to see if the eMMC chip on your phone matches the listed models. If so, you can reuse it, otherwise buy a new eMMC chip, check here for a list of compatible eMMC chips, most recommended is Samsung KLMCG8GEND-B031 model.

Device Disassembly

Check the appropriate disassembly guide for your device here.

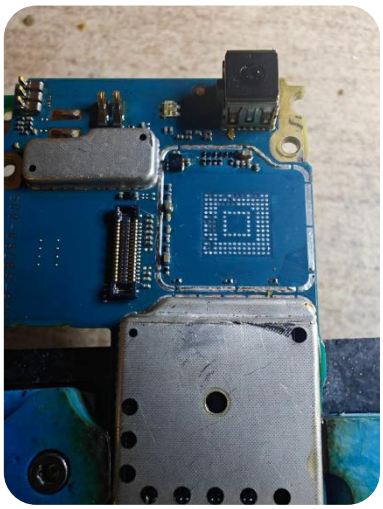
Removing eMMC from the motherboard

Step 1

After disassembling your motherboard, remove the protective shield covering the eMMC chip. It is right below the front camera.

It is important to note that there is glue under the shield, so using a soldering method to remove it is not recommended.

It is best to remove the shield using pliers.



Step 2

De-solder the eMMC chip from the motherboard.

As previously noted, there is a high risk of damaging the front camera by heat if improperly heat-protected. Use a thick layer of heat-resistant tape or remove the camera completely.

Connecting to eMMC and Backup

If using a T48 eMMC adapter, check T48 Adapter Connection Scheme section of this document.
Otherwise, if using an eMMC153 to SD/Micro-SD adapter, solder the eMMC to the adapter and connect it directly to the SD reader port of your computer.

On your computer, open the terminal and find the eMMC location, in this document, the eMMC block location in Linux will be referred to as `/dev/mmcblk0`.

Now you need to back up the data of your eMMC, run the following commands:

```
dd if=/dev/mmcblk0boot0 of=boot0.img
dd if=/dev/mmcblk0 of=user.img
```

Building new images

Using Imggen software, run this command:

```
./imggen /{backup}/boot0.img /{backup}/user.img ./newboot0.img ./newuser.img
```

Removing eMMC Write-Protection

The eMMC chip on your phone is write-protected.

If your eMMC has one of these following models printed on it:
KLMBG4GEND-B031 (for 32GB models)
KLMCG8GEND-B031 (for 64GB models)
or the manufacturer of the eMMC chip is SAMSUNG.

You can remove the write-protection to be able to reuse your eMMC. Download evoPlus_CID software from here, extract and open a Terminal window in the `./libs/` directory in the extracted folder.

To check the manufacturer of the eMMC chip you can also download the PowerTools app, install on your phone using DBBT tool via your computer, open the app, goto System Information > Hardware Information and scroll down to eMMC_Vendor.

Run this command:
```
./evoplus_cid /dev/mmcblk0 00000000000000000000000000000000 1
```

Flashing new images

If your eMMC isn't a listed model in the Removing eMMC Write-Protection section of this document, you should use a new eMMC chip to flash the images. Follow the connection steps in Connecting eMMC and Backup section.

To flash new images, run the following commands:
```
echo 0 > /sys/block/mmcblk0boot0/force_ro
dd if=newboot.img of=/dev/mmcblk0boot0
dd if=newuser.img of=/dev/mmcblk0
```

If you are using a new eMMC, run this command to mark boot0 as the bootable partition:
```
mmc bootpart enable 1 0 /dev/mmcblk0
```

Finishing up

Solder the prepared eMMC chip onto the motherboard and reassemble the phone. Turn the device ON and connect to your computer using a USB cable. Your phone LED should blink WHITE BLUE RED GREEN, indicating that it is in Fastboot mode due to a missing boot image, depending on the firmware, your phone may also display an image on the screen, it is normal if it does not.

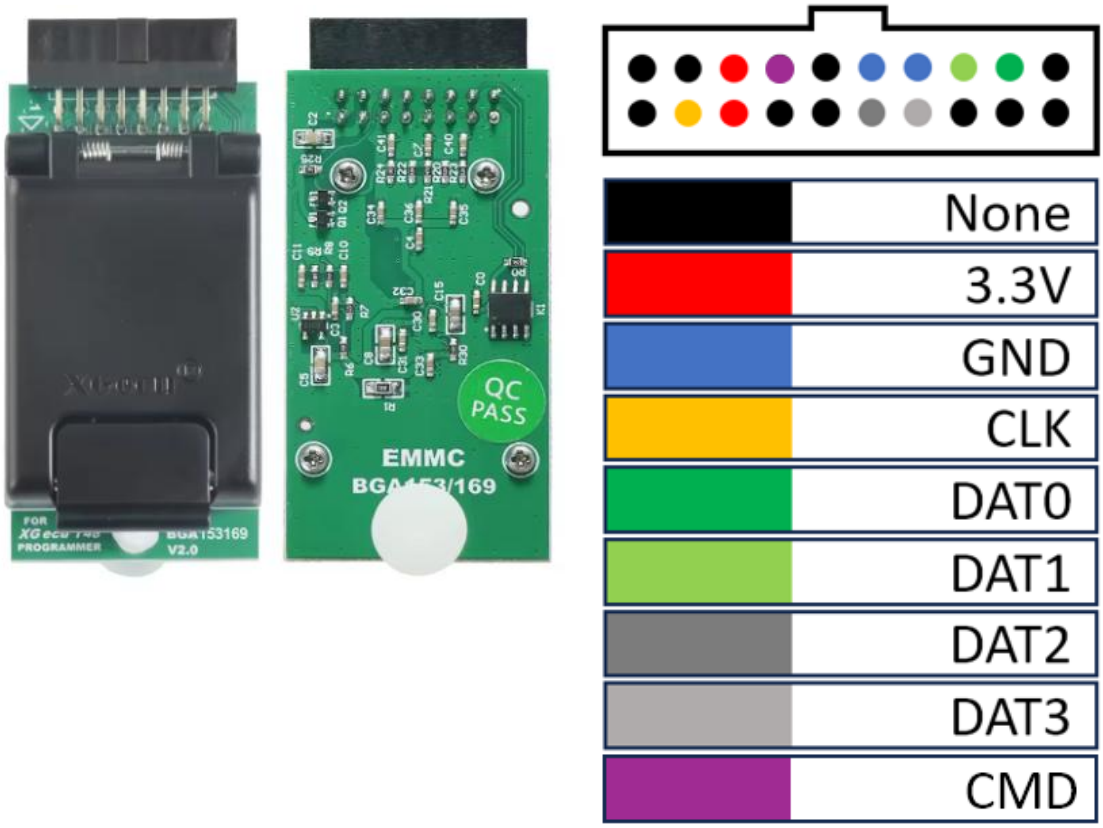
Run this command in a terminal window:
```
fastboot flash recovery {lineageos-directory}/recovery.img
```

Now hold Power + Volume Up key until your phone LED lights up yellow, afterwards wait until screen lights up with the recovery menu. Go-to Factory reset > Format data/factory reset > Format data. Then go-to Apply Update > Apply from ADB. Afterwards, run this command:
```
adb sideload {lineageos-directory}/lineage-18-1{...}.img
```

Wait for update to complete, then in the main menu, select Reboot system now. Your phone will reboot several times and complete installation, once the Setup screen comes up, it is ready to use.

This document is based on information provided in the "BlackBerry Android Hideout" community Discord and Balika011 domain (https://balika011.hu/blackberry).

T48 Adapter Connection Scheme



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