⬚ u-boot / **u-boot** Public

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132 lines (92 loc) · 4.31 KB

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U-Boot for the ASUS/Google Nexus 7 (2012)

`DISCLAMER!` Moving your ASUS/Google Nexus 7 (2012) to use U-Boot assumes replacement of the vendor ASUS bootloader. Vendor android firmwares will no longer be able to run on the device. This replacement IS reversible.

Quick Start

- Build U-Boot
- Process U-Boot
- Flashing U-Boot into the eMMC
- Boot
- Self Upgrading

Build U-Boot

Device support is implemented by applying config fragment to a generic board defconfig. Valid fragments are `tilapia.config`, `grouper_E1565.config` and `grouper_PM269.config`.

```
$ export CROSS_COMPILE=arm-linux-gnueabi-
$ make grouper_common_defconfig grouper_E1565.config # For maxim based grouper
$ make
```

After the build succeeds, you will obtain the final `u-boot-dtb-tegra.bin` image, ready for further processing.

Process U-Boot

`DISCLAMER!` All questions related to the re-crypt work should be asked in re-crypt repo issues. NOT HERE!

re-crypt is a tool that processes the `u-boot-dtb-tegra.bin` binary into form usable by device. This process is required only on the first installation or to recover the device in case of a failed update. You need to know your tablet's individual SBK to continue.

Permanent installation can be performed either by using the nv3p protocol or by pre-loading just built U-Boot into RAM.

Processing for the NV3P protocol

```
$ git clone https://gitlab.com/grate-driver/re-crypt.git
$ cd re-crypt # place your u-boot-dtb-tegra.bin here
$ ./re-crypt.py --dev grouper --sbk <your sbk>
```

where SBK has next form `0xXXXXXXXX  0xXXXXXXXX  0xXXXXXXXX  0xXXXXXXXX`

The script will produce a `repart-block.bin` ready to flash.

Processing for pre-loaded U-Boot

The procedure is the same, but the `--split` argument is used with the `re-crypt.py`. The script will produce `bct.img` and `ebt.img` ready to flash.

Flashing U-Boot into the eMMC

`DISCLAMER!` All questions related to NvFlash should be asked in the proper place. NOT HERE! Flashing U-Boot will erase all eMMC, so make a backup before!

Permanent installation can be performed either by using the nv3p protocol or by pre-loading just built U-Boot into RAM.

Flashing with the NV3P protocol

Nv3p is a custom Nvidia protocol used to recover bricked devices. Devices can enter it either by using `wheelie` with the correct `blob.bin` file or by pre-loading vendor bootloader with the Fusée Gelée.

With nv3p, `repart-block.bin` is used. It contains BCT and a bootloader in encrypted state in form, which can just be written RAW at the start of eMMC.

```
$ wheelie --blob blob.bin
$ nvflash --resume --rawdevicewrite 0 1024 repart-block.bin
```

When flashing is done, reboot the device.

Flashing with a pre-loaded U-Boot

U-Boot pre-loaded into RAM acts the same as when it was booted "cold". Currently U-Boot supports bootmenu entry fastboot, which allows to write a processed copy of U-Boot permanently into eMMC.

While pre-loading U-Boot, hold the `volume down` button which will trigger the bootmenu. There, select `fastboot` using the volume and power buttons. After, on host PC, do:

```
$ fastboot flash 0.1 bct.img
$ fastboot flash 0.2 ebt.img
$ fastboot reboot
```

Device will reboot.

Boot

To boot Linux, U-Boot will look for an `extlinux.conf` on eMMC. Additionally, if the Volume Down button is pressed while booting, the device will enter bootmenu. Bootmenu contains entries to mount eMMC as mass storage, fastboot, reboot, reboot RCM, poweroff, enter U-Boot console and update bootloader (check the next chapter).

Flashing `repart-block.bin` eliminates vendor restrictions on eMMC and allows the user to use/partition it in any way the user desires.

Self Upgrading

Place your `u-boot-dtb-tegra.bin` on the first partition of the eMMC (using ability of u-boot to mount it). Enter bootmenu, choose update bootloader option with Power button and U-Boot should update itself. Once the process is completed, U-Boot will ask to press any button to reboot.