

NC-X1 Image Refresh

User Manual

CONFIDENTIAL

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Version 1.3

Content

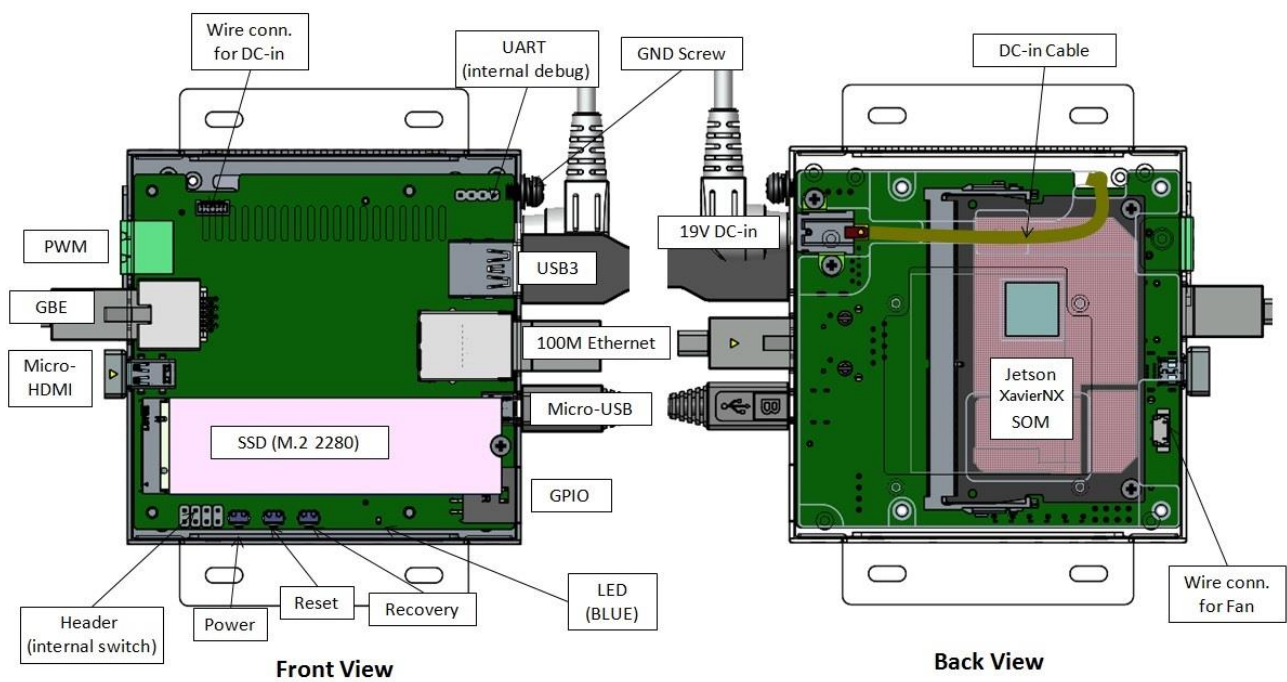
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1. Introduction

This document is to describe how to download Jetpack 5.0.2 system image to NC_X1 device, including hardware requirement, download environment & image preparation and download procedures.

2. Board Overview



3. Getting Started

3.1. Hardware Requirement

1. Linux Host PC/Notebook with Ubuntu Linux X64 20.04 or 18.04
2. USB Type-A to Micro USB cable (to connect Host PC/NB to NC_X1)












3.2. Download Image & Refresh Script

1. Check the OneDrive URL provided by AIMobile for image refresh package (X1_r35_1_0.tar.xz in the example below).

我的檔案 > NC_X1_r35_1 

 名稱 ▾	修改時間 ▾	修改者 ▾	檔案大小 ▾	共用
 X1_r35_1_0.tar.xz	昨天 6:37 PM	Chiang.MR 蔣明儒 AIM	1.73 GB	 已共用

2. Download the image refresh package and extract it to Linux Host PC/NB, a **bootloader** folder will be created, and the image burning script **NX_Flash.sh** is in it.

 bootloader	2022/11/10 下午 01:13	檔案資料夾
 nvtboot_recovery_cpu_t194.bin	228 640	
 nvtboot_recovery_t194.bin	201 916	
 nvtboot_t194.bin	203 480	
 nv_boot_control.conf	118	
 NX_Flash.sh	1 548	
 pinctrl-tegra.h	1 059	
 preboot_c10_prod_cr.bin	24 016	
 pscfw_t234_prod.bin	520 192	
 psc_bl1_t234_prod.bin	122 144	
 psc_rf_t234_prod.bin	122 144	

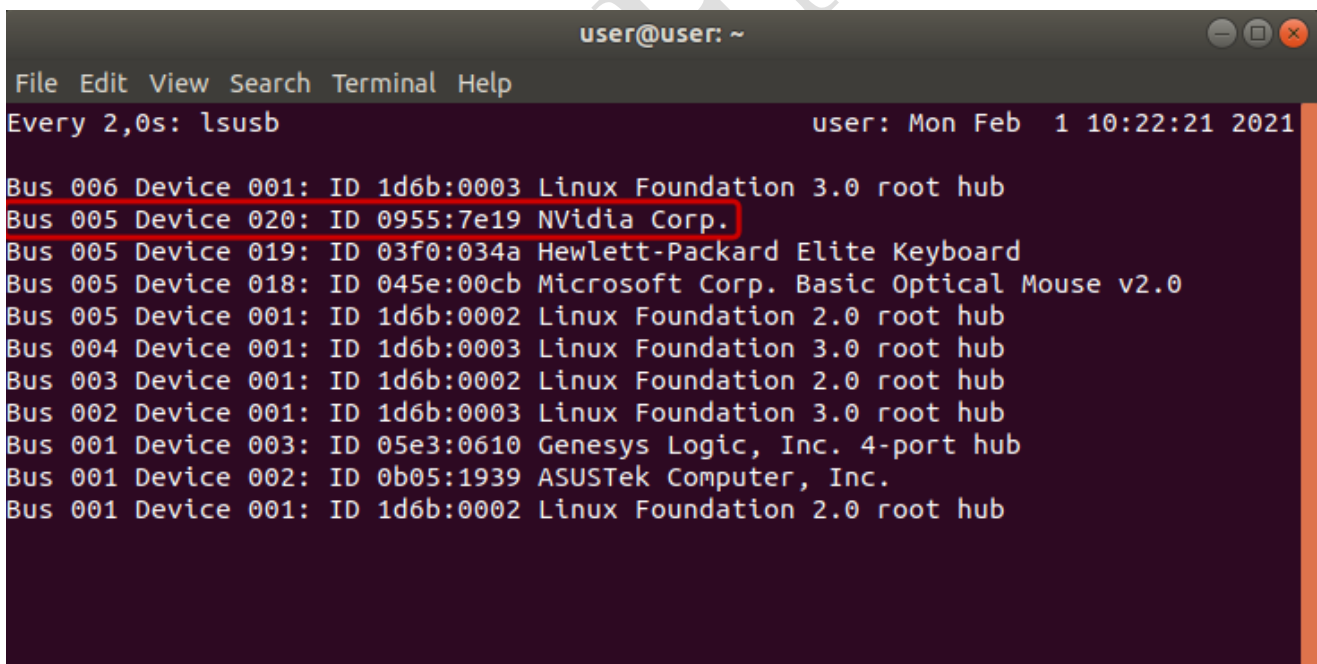
3.3. Image Refresh Procedures

1. Connect Linux Host PC/NB to NC_X1 device with USB Type-A to Micro USB cable
2. Put NC_X1 to force USB recovery mode. (check Section 3.4 below)
3. Enter the extracted image refresh package folder (**./bootloader**) on Linux Host PC/NB and execute **NX_Flash.sh** to download image to NC_X1, it takes around 15~20 minutes.
4. After image is refreshed, NC_X1 will reboot automatically.

3.4. Enter Force USB Recovery Mode

To update your device, you must be in Force USB Recovery Mode so that you can transfer system image to the Jetson Xavier NX device. To place device in Force USB Recovery Mode,

1. Power down the device. If connected, remove the DC power from the device. The device must be powered OFF, and not in a suspend or sleep state.
2. Connect the Micro-B plug on the USB cable to the Recovery (USB Micro-B) Port on the device and the other end to an available USB port on the host PC.
3. Connect the power adapter to the device.
4. With the system powered on:
 - Press and hold the RECOVERY button with paperclip.
 - While pressing the RECOVERY button, press and release the RESET button with paperclip.
 - Wait 2 seconds and release the RECOVERY button.
5. After NC_X1 enter Force USB Recovery Mode, if it connected to Linux Host PC/NB already, execute “lsusb” command on Host PC/NB, a “0955:7e19 NVidia Corp.” device will appear. If not, perform Step 4 above again.



```

user@user: ~
File Edit View Search Terminal Help
Every 2,0s: lsusb user: Mon Feb 1 10:22:21 2021
Bus 006 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 005 Device 020: ID 0955:7e19 NVidia Corp.
Bus 005 Device 019: ID 03f0:034a Hewlett-Packard Elite Keyboard
Bus 005 Device 018: ID 045e:00cb Microsoft Corp. Basic Optical Mouse v2.0
Bus 005 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 004 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 003 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 003: ID 05e3:0610 Genesys Logic, Inc. 4-port hub
Bus 001 Device 002: ID 0b05:1939 ASUSTek Computer, Inc.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
  
```

4. Trouble Shooting

4.1. lz4c error

The image refresh progress will utilize lz4c tool, if the Linux host PC doesn't have this tool installed, you may meet the error message as the image below. If so, please use the command `sudo apt-get install liblz4-tool` to install the lz4c tool to solve it.

```
[ 0.1023 ] bmp_dtb is compressed; decompressing...
[ 0.1024 ] lz4c -df tegra194-a02-bmp-p3668-a00_lz4.dtb tegra194-a02-bmp-p3668-a00_lz4_with_odm.dtb
Traceback (most recent call last):
  File "./tegraflash.py", line 1369, in <module>
    tegraflash_run_commands()
  File "./tegraflash.py", line 1210, in tegraflash_run_commands
    interpreter.onecmd(command)
  File "/usr/lib/python3.7/cmd.py", line 217, in onecmd
    return func(arg)
  File "./tegraflash.py", line 271, in do_flash
    self.chip_inst.tegraflash_flash(exports)
  File "/home/kuogs/work/NC_X1/bootloader/tegraflash_internal.py", line 416, in tegraflash_flash
    tegraflash_parse_partitionlayout()
  File "/home/kuogs/work/NC_X1/bootloader/tegraflash_internal.py", line 4684, in tegraflash_parse_partiti
onlayout
    tegraflash_update_t194_bmp_dtb(t194_bmp_uphy_config)
  File "/home/kuogs/work/NC_X1/bootloader/tegraflash_internal.py", line 4487, in tegraflash_update_t194_b
mp_dtb
    run_command(command)
  File "/home/kuogs/work/NC_X1/bootloader/tegraflash_internal.py", line 274, in run_command
    process = subprocess.Popen(cmd, stdout=subprocess.PIPE, stderr=subprocess.STDOUT, shell=use_shell, en
v=cmd_environ)
  File "/usr/lib/python3.7/subprocess.py", line 800, in __init__
    restore_signals, start_new_session)
  File "/usr/lib/python3.7/subprocess.py", line 1551, in _execute_child
    raise child_exception_type(errno_num, err_msg, err_filename)
FileNotFoundError: [Errno 2] No such file or directory: 'lz4c': 'lz4c'
```