



Jetson AGX Xavier as Jetson Xavier NX

Emulation Package User Guide



Document History

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About this Guide

This guide describes how to emulate NVIDIA® Jetson Xavier™ NX using a Jetson AGX Xavier™ Developer Kit.

Introduction

NVIDIA Jetson Xavier NX brings supercomputer performance to the edge in a compact system on module smaller than the size of a credit card. Development for Jetson Xavier NX can be done on a Jetson AGX Xavier Developer Kit by applying this emulation package. For the purpose of emulation, the package limits the number of CPU cores and GPU TPCs, DDR bandwidth/size, and all maximum clock frequencies for the Jetson AGX Xavier module to match those of Jetson Xavier NX.

Getting Started

Prerequisites

- Jetson AGX Xavier Developer Kit
- Linux host computer running Ubuntu 18.04 or 16.04

Perform Required Downloads

To apply Jetson Xavier NX Emulation Package you must first download from the Jetson developer site at <https://developer.nvidia.com/embedded/downloads>:

- The latest Jetson™ Linux Driver Package (L4T) and sample root filesystem for Jetson AGX Xavier
- Jetson AGX Xavier as Jetson Xavier NX Emulation Package

Apply the Emulation Package

Follow these instructions to apply the emulation package on top of the Jetson AGX Xavier BSP:

1. Extract the L4T Driver Package:

```
$ sudo tar xpf Tegra186_Linux_R32.2.1_aarch64.tbz2
```

2. Extract the sample root filesystem:

```
$ cd Linux_for_Tegra/rootfs/  
$ sudo tar xpf ../../Tegra_Linux_Sample-Root-  
Filesystem_R32.2.1_aarch64.tbz2
```

3. Run `apply_binaries.sh`:

```
$ cd ..  
$ sudo ./apply_binaries.sh
```

4. Copy and extract the emulation package so that it overlays the sample root filesystem:

```
$ sudo cp ../Jetson_Xavier_NX_overlay.tbz2 .  
$ sudo tar xpf Jetson_Xavier_NX_overlay.tbz2
```



Note: Make sure the execution of `apply_binaries.sh` is complete before you extract the overlay package.

Emulating Jetson Xavier NX

Prepare the Jetson AGX Developer Kit

Power off the Jetson AGX Xavier Developer Kit and connect it to your Linux host computer as follows:

1. Connect a USB cable from the host computer to the USB-C port next to the developer kit's power button.
2. Connect keyboard, mouse, and display to the developer kit for initial configuration after flashing. (You may skip this step if you plan to use a serial console connection for initial configuration.)
3. Put the Jetson AGX Xavier Developer Kit into "Force Recovery Mode."
 1. Ensure that the developer kit is powered off.
 2. Press and hold down the Force Recovery button.
 3. Press, then release the Power button.
 4. Release the Recovery button.

Flash the Jetson AGX Developer Kit

Once the emulation package is extracted as described above, you can find the “jetson-xavier-as-xavier-nx.conf” flash configuration file under the “Linux_for_Tegra” directory.

Run the following command from the `Linux_for_Tegra` directory to flash Jetson AGX Xavier to emulate Jetson Xavier NX:

```
$ sudo ./flash.sh jetson-xavier-as-xavier-nx mmcblk0p1
```

When flashing is complete, the developer kit automatically restarts.

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