Connect Tech

BOARD SUPPORT PACKAGE

For Connect Tech NVIDIA® Jetson Orin™ NX/Orin™ Nano Carriers

BSP Version: ORIN-NX-NANO-36.5.0 V003
Last Updated: 2026/05/25

1. Introduction

This Board Support Package adds support for the Connect Tech Jetson Orin™ NX and Orin™ Nano family of carrier boards to Linux4Tegra. It includes any extra files required to use all the features of Connect Tech carriers.

Please check Section 3 for supported features for your board and Section 9 for the changes made between versions. You can check which version of the BSP you have installed by running:

cat /etc/cti/CTI-L4T.version

Check for the Latest Version of the CTI-L4T BSP at:
https://connecttech.com/resource-center/l4t-board-support-packages/

2. Requirements

- x86/x64 based host machine running Ubuntu 20.04 or 22.04
- JetPack 6.2.2 / L4T 36.5.0 installed (see Section 4)
- Orin™ NX or Orin™ Nano module
- Connect Tech Orin™ NX/Orin™ Nano Carrier
- USB Cable for flashing

*L4T version can be found in /etc/nv_tegra_release and will look like this:
R36 (release), REVISION: 5.0

3. BSP Features

3.1 Product Specific Details

NGX003 (Photon)

- USB 3.0 Support
- USB OTG Supported in device mode.
- HDMI Support
- Micro SD Card Not Supported on Orin™ NX/Orin™ Nano
- NVMe Card Support
- PoE Support
- Wifi/Bluetooth Card Not Supported on Orin™ NX/Orin™ Nano
    - NVMe/Wifi-bluetooth mux switch must always be on NVMe

  Since device flashes onto NVMe!
- Cellular Card Support
- RGB LED Support
- UART Support
- I2C Support
- GPIO Support
- MIPI camera support

NGX007 (Boson)

- USB 3.0 Support
- USB OTG Support
- Display(HDMI)
- Micro SD Card Not Supported on Orin™ NX/Orin™ Nano
- GbE Phy Support
- CAN Support
- UART Support
- SPI Support
- I2C Support
- PWM Support
- Wifi/Bluetooth Support
- NVMe Card Support

NGX010 (Rudi-NX)

- USB 3.0 Support
- USB OTG Support
- HDMI Support
- NVMe Card Support
- CAN Support
- GbE Phy Support
- Cellular Card Support
- Wifi/Bluetooth card Support
- UART Support
- RS485 Support
- I2C Support

- GPIO Support
- SPI Support
- PWM Support
- RTC Battery Support

NGX012 (Hadron)

- USB 3.0 Support
- USB OTG Support
- GbE Phy Support
- NVMe Card Support
- Wifi/Bluetooth support
- CAN Support
- UART Support
- I2C Support
- GPIO Support
- SPI Support
- PWM Support

NGX018 (Hadron GMSL)

- USB 3.0 Support
- USB OTG Support
- GbE Phy Support
- NVMe Card Support
- Wifi/Bluetooth support
- CAN Support
- UART Support
- I2C Support
- GPIO Support
- PWM Support

NGX020 (Boson for Orin)

- USB 3.0 Support
- USB OTG Support
- Display(HDMI)
- GbE Phy Support
- CAN Support
- UART Support
- SPI Support
- I2C Support
- PWM Support
- Wifi/Bluetooth Support
- NVMe Card Support

NGX021 (Boson22 for Orin)

- USB 3.0 Support
- USB OTG Support
- Display(HDMI)
- GbE Phy Support
- CAN Support
- UART Support
- SPI Support
- I2C Support
- PWM Support
- Wifi/Bluetooth Support
- NVMe Card Support
- 22-pin CSI camera connector Support

NGX022 (Lepton FPDLink III)

- USB 3.0 Support
- USB OTG Support
- Display(HDMI)
- GbE Phy Support
- CAN Support
- UART Support
- SPI Support
- I2C Support
- PWM Support
- Wifi/Bluetooth Support
- NVMe Card Support
- FPDLINK III Camera Support
- External Trigger Support

Supported Cameras:

- Econ NeduCAM25

NGX024 (Hadron Dual Mipi)

- USB 3.0 Support
- USB OTG Support
- GbE Phy Support
- NVMe Card Support
- Wifi/Bluetooth support
- CAN Support
- UART Support
- I2C Support

- GPIO Support
- SPI Support
- PWM Support

NGX026/CORE03/CORE04 (Essential-EdgeAI)

- 1G ethernet Support.
- NVMe Card Support.
- USB OTG Support.
- Debug UART Support.

NGX027 (Super Hadron DM)

- USB 3.0 Support
- USB OTG Support
- GbE Phy Support
- NVMe Card Support
- Wifi/Bluetooth support
- CAN Support
- UART Support
- I2C Support
- GPIO Support
- SPI Support
- PWM Support

*Note uses NGX024 Hadron Dual Mipi Software config

4. Installation

4.1 Obtaining NVIDIA® Jetpack

Before Installing the BSP you will need to install JetPack 6.2.2 on the host system using NVIDIA® SDK Manager (section 4.1.1) or from the NVIDIA® Embedded Download Center (section 4.1.2)

4.1.1 Installing JetPack from SDK Manager

For installing using sdkmanager, please follow installation steps from kdb373 for Jetpack 4.2+ https://connecttech.com/resource-center/kdb373/

4.1.2 Installing JetPack from NVIDIA® Embedded Download Center

1. Create a new directory for installing the Jetpack. Referred to as <BSP_ROOT> in these instructions.

2. Go to Jetpack Release Page https://developer.nvidia.com/embedded/jetson-linux-r365

3. Download the "Driver Package (BSP)" and "Sample Root Filesystem" files for Orin modules (t234 platform).

4. Put the "L4T Driver Package (BSP)" and "Sample Root Filesystem" in <BSP_ROOT>. Afterwards, you should have the following files in <BSP_ROOT>

- Jetson_Linux_R36.5.0_aarch64.tbz2
- Tegra_Linux_Sample-Root-Filesystem_R36.5.0_aarch64.tbz2

5. Extract the "L4T Driver Package" tarball:

cd <BSP_ROOT>
sudo tar -jxf Jetson_Linux_R36.5.0_aarch64.tbz2

6. You should now have a new directory called Linux_for_Tegra in your <BSP_ROOT> folder. Extract the "Sample Root Filesystem" into Linux_for_Tegra/rootfs.

sudo tar -C Linux_for_Tegra/rootfs/ -xjf Tegra_Linux_Sample-Root-Filesystem_R36.5.0_aarch64.tbz2

4.2 CTI BSP Installation

1. Copy the CTI-L4T-ORIN-NX-NANO-36.5.0-V###.tgz package into <BSP_ROOT>/Linux_for_Tegra.

If you are using Nvidia's SDK manager then "<BSP_ROOT>" will be:
~/nvidia/nvidia_sdk/<JetPack_Version>_Linux_JETSON_NX_ORIN_TARGETS/
or
~/nvidia/nvidia_sdk/<JetPack_Version>_Linux_JETSON_NANO_ORIN_TARGETS/
depending on your target module.

Otherwise if manually installing from the NVIDIA® Embedded Download Center <BSP_ROOT> will be the folder created previously

cp CTI-L4T-ORIN-NX-NANO-36.5.0-V###.tgz <BSP_ROOT>/Linux_for_Tegra

2. Extract the BSP: tar -xzf CTI-L4T-ORIN-NX-NANO-36.5.0-V###.tgz
cd <BSP_ROOT>/Linux_for_Tegra

sudo tar -xzf CTI-L4T-ORIN-NX-NANO-36.5.0-V###.tgz

3. Change into the CTI-L4T directory:
cd <BSP_ROOT>/Linux_for_Tegra/CTI-L4T

4. Run the install script (as root or sudo) to automatically install the BSP files to the correct locations:

sudo ./install.sh
#return to Linux_for_Tegra
cd ..

5. The CTI-L4T BSP is now installed on the host system and it should now be able to flash the Orin™ NX/Orin™ Nano module.

5. Flashing Orin™ NX/Orin™ Nano Modules

1. Connect an NVMe m.2 card to one of the m.2 slots on your Orin™ NX/Orin™ Nano carrier.

2. Connect the Orin™ NX/Orin™ Nano and Carrier to the computer via USB, following the instructions in the appropriate manual.

3. Put the system to be flashed into recovery mode, following the instructions in the appropriate manual

4. There are two options for flashing Jetson modules:

Using CTI's automated script:
./cti-flash.sh

Follow the menu and select your desired configuration. Once selected,

the device will start to flash.

Using the Manual Method with cti-nvme-flash:

Note do not add the ".conf" file extension to the <config> parameter:

Manual Flash (standard mode):
./cti-nvme-flash.sh cti/<module>/<boardname>/<config>

<module> is either orin-nx or orin-nano depending on your module.

Manual Flash (super mode):
SUPER_MODE=1 ./cti-nvme-flash.sh cti/<module>/<boardname>/<config>

Examples:
./cti-nvme-flash.sh cti/orin-nx/boson/base
./cti-nvme-flash.sh cti/orin-nano/boson/base
SUPER_MODE=1 ./cti-nvme-flash.sh cti/orin-nx/hadron/base

5. Once the flashing has completed, the Orin™ NX/Orin™ Nano will reboot

6. Upgrading to a New Package Release

Upgrading L4T or CTI-BSP versions without reflashing is not currently supported.

7. Switching Profiles on Orin™ NX/Orin™ Nano

1. Open a terminal on the Orin™ NX/Orin™ Nano

2. Run "sudo cti-orin-nx-nano-fdt.sh"

3. Select the profile you wish to switch to from the menu.

4. Select the target module (Orin-NX or Orin-NANO) from the menu.

5. Restart the system

Note: This script updates the dtb by appending/replacing the FDT variable in extlinux.conf
This script does not support switching to super mode. When board is flashed into super mode, this script cannot switch back to normal mode the module needs to be reflashed.

8. Using the Jetson's Internal TPM

Starting in 36.4.4, NVIDIA® has added a tpm provisioning service that manually probes the tpm_ftpm_tee driver and sets up the Jetson's internal tpm at /dev/tpm0.

Since we have some carriers with external tpms, we opted to disable these services (nv-ftpm-device-provision.service and nv-tee-supplicant.service) by default.

If you wish to use the native TPM, CTI has provided a simple script
that will load these services and reboot the device so that the changes take effect:

/etc/systemd/cti-enable-nv-tpm.sh

This script will prompt you when being run:

TPM Provision service will be setup and the system will reboot.
After reboot the tpm on the module should be available at /dev/tpm0.
It has been observed on Orin™ NX/Orin™ Nano that if you flash two modules run these services and then swap
the NVMes between them that the tpm driver will fail it's probe on boot, so /dev/tpm0 will not be present.
A dependency appears to form with the original boot device.
Note that it is not recommended to run this script if you are using a carrier with an external TPM.
Would you like to continue? Yy/Nn:

You can skip this prompt by adding -y when you run cti-enable-nv-tpm.sh:

/etc/systemd/cti-enable-nv-tpm.sh -y

Note that if the script detects that the nv-ftpm-device-provision.service and nv-tee-supplicant.service services are already registered, it will exit the program:

nv-ftpm-device-provision.service and nv-tee-supplicant.service appear already loaded!
They were found in /etc/systemd/system/sysinit.target.wants/!
These services should already be running on boot!
If the link files have been modified or corrupted, remove them to rerun this script.
Exiting...

9. Change Log

Version ORIN-NX-NANO-36.5.0 V003, May 25, 2026

- Added support of Econ NeduCAM25 for Lepton (NGX022).

Version ORIN-NX-NANO-36.5.0 V002, May 8, 2026

- Added support of EMC2103 fan controller for Lepton (NGX022).

Version ORIN-NX-NANO-36.5.0 V001, May 8, 2026

- Initial release of Jetpack 6.2.2 (l4t 36.5.0) for Orin™ NX/Orin™ Nano

Contact Connect Tech

If you have any problems, questions or suggestions regarding the Board Support Package and hardware, please feel free to contact Connect Tech Inc.

Contact Information	
Support	Please go to the Connect Tech Resource Center for product manuals, installation guides, device drivers, BSPs and technical tips. Submit your technical support questions to our support engineers. Technical Support representatives are available Monday through Friday, from 8:30 a.m. to 5:00 p.m. Eastern Standard Time.
Contact Information	support@connecttech.com sales@connecttech.com www.connecttech.com Toll Free: 800-426-8979 (North America only) Telephone: +1-519-836-1291 Facsimile: 519-836-4878 (on-line 24 hours)