

BOARD SUPPORT PACKAGE

For Connect Tech NVIDIA Jetson SGX Carriers

BSP Version: SGX-32.7.2 V001
Last Updated: 2022/06/03

Introduction

This Board Support Package adds support for Connect Tech Sentry-X Rugged Embedded System to Linux4Tegra. It includes any extra files required to use all the features of the carrier. Please check the "Product Specific Details" section for what features for your board is supported with this BSP release and the "Changes" section 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/>

Supported Cameras in BSP

- None Applicable

Requirements

- x86 based host machine running Ubuntu 18.04
- JetPack 4.6.2 installed (from NVIDIA Embedded Download Center)
- Connect Tech Sentry-X Rugged Embedded System
- USB Cable for flashing
- L4T 32.7.2

*L4T version can be found in `/etc/nv_tegra_release` and will look like this:
`# R32 (release), REVISION: 7.2`

Installation

1. Before Installing the BSP you will need to install JetPack 4.6.2 on the x86 host system using the NVIDIA SDK Manager or from the source packages on

NVIDIA's website as detailed below.

2. Copy the CTI-L4T-SGX-32.7.2-V001.tgz package into
`~/nvidia/nvidia_sdk/JetPack_4.6.2_Linux_JETSON_AGX_XAVIER/Linux_for_Tegra/`

3. Extract the BSP: `tar -xzf CTI-L4T-SGX-32.7.2-V001.tgz`

4. Change into the CTI-L4T directory: `cd ./CTI-L4T`

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

```
sudo ./install.sh  
cd ..
```

6. The CTI-L4T BSP is now installed on the host system and it should now be able to flash the AGX Xavier module.

7. To flash on the AGX Xavier use the following (do not add ".conf"):

CTI Assisted Flashing:
`./cti-flash.sh`

Manual Flash:
`./flash.sh cti/xavier/sentry-x/base mmcblk0p1 //for standard xavier agx`
`./flash.sh cti/xavier-l/sentry-x/base mmcblk0p1 //for xavier-industrial`

Installing JetPack from SDK Manager

Please follow installation steps from kdb374 for Jetpack 4.2+
<https://connecttech.com/resource-center/kdb374/>

Installing JetPack from Nvidia's Source packages (Alternate approach)

1. Go to <https://developer.nvidia.com/embedded/linux-tegra-archive> and click on the green button labeled "32.7.2 >".

2. Download the "L4T Driver Package (BSP)" and "Sample Root Filesystem" files for AGX Xavier. Afterwards, you should have the files "Jetson_Linux_R32.7.2_aarch64.tbz2" and "Tegra_Linux_Sample-Root-Filesystem_R32.7.2_aarch64.tbz2".

3. Create a directory named `~/nvidia/nvidia_sdk/JetPack_4.6.2_Linux_JETSON_AGX_XAVIER/` and copy the "Jetson_Linux_R32.7.2_aarch64.tbz2" file you downloaded into that

directory.

4. Unzip the tarball:

```
"sudo tar jxf Jetson_Linux_R32.7.2_aarch64.tbz2"
```

5. You should now have a new directory called Linux_for_Tegra in your "JetPack_4.6.2_Linux_JETSON_AGX_XAVIER" folder. Change directories into that and then copy the "Tegra_Linux_Sample-Root-Filesystem_R32.7.2_aarch64.tbz2" file you downloaded into the rootfs folder inside.

6. Change into the rootfs folder and unzip the tarball:

```
"sudo tar jxf Tegra_Linux_Sample-Root-Filesystem_R32.7.2_aarch64.tbz2"
```

7. If you wish to flash one of NVIDIA's devkits, or move on to installing CTI's BSP. You can change directories back to
~/nvidia/nvidia_sdk/JetPack_4.6.2_Linux_JETSON_AGX_XAVIER/Linux_for_Tegra/
and run: "sudo ./apply_binaries.sh"

Flashing the Sentry-X

1. Connect the Sentry-X to the computer via USB, following the instructions in the Sentry-X manual.
2. Put the system to be flashed into recovery mode, following the instructions in the Sentry-X manual
3. Run "./cti-flash.sh" or "./flash.sh cti/xavier/sentry-x/base mmcblk0p1 (append -l to "xavier" in path for xavier-industrial)"
from Linux_for_Tegra directory
4. Once the flashing has completed, the Xavier will reboot

Upgrading to a New Package Release

Note that using `sudo apt-get upgrade` may break dependencies required by the Nvidia Jetpack.

It is recommended you reflash your module if you wish to update to a newer package version.

Deb Packages are still provided on the CTI deb server, and our source list is still provided in the release. If you wish to use `apt-get upgrade`,

you can do so at your own risk:

run:

```
apt-get update
apt-get upgrade nvidia-l4t-core
```

Note that you will need to use the device tree switching script described in the previous section to reselect your configuration.

This will ensure that you are using the updated device tree.

Product Specific Details

AGX102 (Sentry-X)

- CAN Support
- USB 3.1 Support
- USB OTG Support
- GbE Phy Support
- 2 NVMe
- 8 GPIO (4 input, 4 output)
- Multi-Serial UART Support
- RGB LED Support
- HDMI support
- Wifi/Bluetooth card support
- Choice of Fischer MiniMax Series Connectors Dock or Sealed PC Style Connectors Dock

Changes

Version SGX-32.7.2 V001, Jun 03, 2022

- Added xavier-industrial support.
- Initial release on Jetpack 4.6.2 L4T 32.7.2.

Version SGX-32.6.1 V001, Aug 27, 2021

- Adds updates addressed in Nvidia's June 18th security bulletin
- Initial release on Jetpack 4.6 L4T 32.6.1.

Version SGX-32.5 V001, Mar 30, 2021

- Initial release for Sentry-X on Jetpack 4.5 L4T 32.5

Version SGX-32.4.4 V001, Dec 03, 2020

- Initial release for Sentry-X on Jetpack 4.4.1 L4T 32.4.4

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	<p>Please go to the Connect Tech Resource Center for product manuals, installation guides, device drivers, BSPs and technical tips.</p> <p>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.</p>
Contact Information	<p>support@connecttech.com sales@connecttech.com www.connecttech.com</p> <p>Toll Free: 800-426-8979 (North America only) Telephone: +1-519-836-1291 Facsimile: 519-836-4878 (on-line 24 hours)</p>