e-CAM24_CUNX

e-CAM_TK1-GUVCView Build and Install Guide

e-con Systems

Your Product Development Partner

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Introduction to ecam_tk1_guvcview

e-con Systems is a leading Embedded Product Design Services Company which provides ecam_tk1_guvcview sample application for demonstrating the features of e-CAM24_CUNX camera. However, this camera can utilize any Video for Linux version 2 (V4L2) application.

The ecam_tk1_guvcview application is based on guvcview, but all the controls are performed with GTK+ interface allowing for a more user-friendly Graphical User Interface (GUI). This application forms the basic testing tool for the e-CAM24_CUNX camera. ecam_tk1_guvcview is a V4L2 video viewer and capture software for the camera driver of Jetson Xavier NX™/ Jetson Nano™ board, customized to demonstrate the features of e-CAM24_CUNX.

The commands in this document are represented by color as shown in below table.

Table 1: Notation of Color

Color	Notation
Blue	Commands running in development board

This document explains how to build and install the ecam_tk1_guvcview application from the source.

Prerequisites

The libraries such as gtk, glib, libavcodec and so on are essential to build e-cam_tk1_guvcview software package. Please refer to the *e-CAM24_CUNX_Release_Notes_<REV>.pdf* for the compatible Linux distribution version (L4T version).

The package requirements are as follows:

- gtk+-3.0>=3.0.0
- glib-2.0>=2.10.0
- sdl>=1.2.10
- portaudio-2.0
- libpng
- libavcodec
- libavutil
- libv4l2
- libudev
- libusb-1.0
- intltool

Note: You must make sure that the Jetson Xavier NX™/ Jetson Nano™ board contains all the dependencies.

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Installing Build Dependencies

The steps to install the build dependencies are as follows:

1. Run the following command in Jetson Xavier NX™/ Jetson Nano™ board to enable all the repositories which are required for installing the dependencies.

```
$ sudo apt-get update
```

Note: Make sure that you have connected Jetson board to a stable network.

2. Run the following command to install the dependencies in Jetson board.

```
$ sudo apt-get install intltool libsdl1.2-dev libusb-1.0-0-dev libv4l-dev libudev-dev libportaudio-ocaml-dev libpango1.0-dev libatk1.0-dev libgdk-pixbuf2.0-dev libatk-bridge2.0-dev libcairo2-dev libgtk-3-dev libavutil-dev libavcodec-dev lbzip2
```

Note: If the installation stops with unmet dependencies, then run the following command to fix the libraries.

```
$ sudo apt --fix-broken install
```

3. Run the following commands to install the FFMPEG dependency package.

```
$ wget -c http://ffmpeg.org/releases/ffmpeg-2.8.15.tar.xz
$ tar -xf ffmpeg-2.8.15.tar.xz
$ cd ffmpeg-2.8.15
#For fast install change the power mode to maximum
$ sudo nvpmodel -m 0
$ sudo jetson_clocks
$./configure
$ make -j4
$ sudo make install
```

Note: You can also use the FFMPEG package source provided in **e-CAM24_CUNX_JETSON_<L4T_version>_<release_date>_<release_version>.tar.gz** release package at **Application/ecam_tk1_guvcview/Source/ecam_tk1_guvcview_dependency.tar.gz** location.

Description

The e-CAM24_CUNX guvcviewer or ecam_tk1_guvcview application is a simple GTK+ interface for capturing and viewing video from the devices supported on the Jetson board.

Using e-CAM_TK1 guvcviewer or ecam_tk1_guvcview application, you can perform the following:

- Enumerate and list all video devices connected.
- Display properties of video renderer.
- Change the resolution and color space or compression for video stream, if different resolutions are supported by the device.
- Display currently configured values of preview.
- Capture the still images and set the path where still images will be saved.
- Display the average frame rate.

All the above listed properties can be configured by attractive and easy to use GUI.

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Identifying the Deliverables

This section describes about identifying the deliverables.

The release package contains the application source code, ecam_tk1_guvcview application executables and documents. Please refer to the *e-CAM24_CUNX_Release_Notes_<REV>.pdf* for the Linux for Tegra (L4T) version.

The steps for identifying the deliverables are as follows:

1. Copy the release package tar file to the home directory of the board.
2. Run the following commands to extract the e-CAM24_CUNX release package.

```
tar -xf e-CAM24_CUNX_JETSON_<L4T_version>_<release_date>_<release_version>.tar.gz
cd e-CAM24_CUNX_JETSON_<L4T_version>_<release_date>_<release_version>
```

Note: Do not right click to extract the package.

The source code for the ecam_tk1_guvcview application is present in the release package at the following location.

Application/ecam_tk1_guvcview/Source/e-CAM_TK1_guvcview-src-1.7.2.tar.gz

Please refer to the *Building and Installing ecam_tk1_guvcview from the Source* section to build application from the source

Building and Installing ecam_tk1_guvcview from the Source

This section describes about building and installing ecam_tk1_guvcview from the source.

The steps to build and install ecam_tk1_guvcview from the source are as follows:

1. Run the following commands to navigate to the application source directory in Jetson board and extract the package.

```
cd Application/ecam_tk1_guvcview/Source/
tar -xf e-CAM_TK1_guvcview-src-1.7.2.tar.gz
cd e-CAM_TK1_guvcview-src-1.7.2/
```

2. Run the following commands to configure the ecam_tk1_guvcview source.

```
./configure --prefix=/usr/local/ecam_tk1
echo 'export PATH=$PATH:/usr/local/ecam_tk1/bin' >> $HOME/.bashrc
source ~/.bashrc
```

The configuration is required to check the presence of dependent packages and to create the makefiles. If you want to change the **default /usr/local/bin** binary installation directory, add **--prefix = <path_to_install>**.

To know more information on configuring ecam_tk1_guvcview source, run the following command.

```
./configure --help
```

Note: If configuration fails, please contact the Ubuntu's Help Center to know on how to install any required packages.

3. Run the following make command to build the ecam_tk1_guvcview application from source.

```
make -j4
```

4. Run the following make install command to install the built application.

```
sudo make install
```

The ecam_tk1_guvcview application will be installed in **/usr/local/ecam_tk1/bin** location of Jetson board. This application is used to capture and view video from the camera.

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Troubleshooting

In this section, you can view the commonly occurring issue and their troubleshooting step.

What can I do when I encounter error in *make* or *make install* stage?

Make sure that you have installed all the dependency packages listed in the *Prerequisites* section. Please refer to the *Installing Build Dependencies* section to install build dependencies and try again.

What can I do when apt-get update fails?

Make sure that you have installed all the dependency packages listed in the *Prerequisites* section before building the binaries. If the apt-get update requires a long time to run and fails, kindly wait for some time and retry. This issue might occur due to network problem.

FAQ

1. **Is the ecam_tk1_guvcview application compatible to all the L4T versions?**

   No, the application is tested and verified in specific L4T version. The steps mentioned in this document is not compatible to all the L4T/Jetpack™ version. Please refer to the *e-CAM24_CUNX_Release_Notes.pdf* for the compatible Linux distribution version (L4T version).

2. **How can I get the updated package?**

   Please login to the Developer Resources website to download the latest release package.

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What's Next?

After understanding the build and installation procedure of eCAM_tk1_guvcview application, you can refer to the following documents to understand more about e-CAM24_CUNX.

- *e-CAM24_CUNX Release Notes*
- *e-CAM24_CUNX Linux App User Manual*

Glossary

API: Application Programming Interface.

FFMPEG: Fast Forward Motion Picture Experts Group.

GIMP: GNU Image Manipulation Program.

GNU: GNU's Not Unix.

GTK: GIMP Toolkit.

GUI: Graphical User Interface.

L4T: Linux for Tegra.

V4L2: Video4Linux2 is a collection of device drivers and API for supporting real-time video capture on Linux systems.

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Support

Contact Us

If you need any support on e-CAM24_CUNX product, please contact us using the Live Chat option available on our website - https://www.e-consystems.com/

Creating a Ticket

If you need to create a ticket for any type of issue, please visit the ticketing page on our website - https://www.e-consystems.com/create-ticket.asp

RMA

To know about our Return Material Authorization (RMA) policy, please visit the RMA Policy page on our website - https://www.e-consystems.com/RMA-Policy.asp

General Product Warranty Terms

To know about our General Product Warranty Terms, please visit the General Warranty Terms page on our website - https://www.e-consystems.com/warranty.asp

Revision History

Rev	Date	Description	Author
1.0	15-Dec-2020	Initial Draft	Camera Dev Team
2.0	30-Dec-2020	NANO support added	Camera Dev Team
2.1	09-Mar-2021	Updated the FAQ Section	Camera Dev Team

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