

Baumer GAPI SDK for NVIDIA® Jetson TX1 with Linux® Ubuntu® 16.04 **AN201701/0.3/2018-03-09**

Description

This document explains how to install the ARM®-based single board computer NVIDIA® Jetson TX1 for the usage of Baumer Industrial Cameras.

Products

NVIDIA® Jetson TX1

Baumer GAPI SDK – Linux® Ubuntu®

Baumer GigE Industrial Cameras

Preparation

Before the Baumer GAPI SDK can be installed on NVIDIA® Jetson TX1 the operating system (OS) “Linux® for Tegra® R24.2.1” must be installed. For further information see chapter 2 – Getting started.

Contents

1	Technical Background.....	2
2	Getting Started	2
2.1	Installing a new OS on NVIDIA® Jetson TX1	2
2.2	Installing Baumer GAPI SDK.....	2
2.3	GigE Performance	2
3.3.1.	Onboard GigE Ethernet Adapter	2
3.3.2.	Ethernet Adapter via PCIe	2
3	Support	3
4	Legal Notes.....	3

1 Technical Background

The Jetson TX1 is a single board computer with an ARM®-based central processing unit (CPU). It's a quad-core CPU based on the ARM® Cortex® A57 64bit architecture. It further integrates a graphics processing unit (GPU) based on the NVIDIA® Kepler architecture. The Jetson TX1 supports Gigabit Ethernet with Jumbo Frames and data rates up to 1 Gbit/sec as well as USB 3.0 featuring data rates of up to 5 GBit/sec.

2 Getting Started

2.1 Installing a new OS on NVIDIA® Jetson TX1

Installing a new OS on NVIDIA® Jetson TX1 requires a host PC with Linux® OS (only Ubuntu® 16.04 is supported by NVIDIA®). It is necessary to install the OS version Linux® for Tegra® R24.2.1 on the Jetson TX1 to get the Baumer GAPI SDK working.

First download the *Driver Package* and the *Sample File System* from the following link:

<https://developer.nvidia.com/embedded/linux-tegra-archive>

Then, follow the guide on the NVIDIA® website to install the new OS:

<https://developer.nvidia.com/embedded/jetpack>

Note: Please refer to the Installation Guide for Linux on how to connect a camera, acquire images and build an application.

2.2 Installing Baumer GAPI SDK

To install the Baumer GAPI SDK download the Jetson TX1 software package from the Baumer website (www.baumer.com). You can download the software package directly to the Jetson TX1 by connecting it to the internet. Then install the software by using the Linux® terminal. Change to the directory where the downloaded file is stored (e.g. /home/user/Downloads).

The file is called "baumer-gapi-sdk-linux-v2.7.xxxxx-Ubuntu-16.04-arm64.deb"¹.

Start the installation by executing the following command:

```
# sudo dpkg -i baumer-gapi-sdk-linux-v2.7.xxxxx-Ubuntu-16.04-arm64.deb1
```

2.3 GigE Performance

3.3.1. Onboard GigE Ethernet Adapter

Since the Onboard GigE Ethernet Adapter is realized via USB3 hub it offers a lower performance level. If this adapter is used, it is recommended to use a larger packet delay in order to avoid corrupted frames.

3.3.2. Ethernet Adapter via PCIe

For best Ethernet performance it is recommended to use the PCIe bus of the TX1 board. Here a lower packet delay can be used for avoiding corrupted frames.

¹ xxxxx is a version number

3 Support

In the case of any questions or for troubleshooting please contact our support team.

Worldwide

Baumer Optronic GmbH

Badstrasse 30 · DE-01454 Radeberg
Deutschland

Phone +49 3528 4386 845

support.cameras@baumer.com

4 Legal Notes

All product and company names mentioned are trademarks or registered trademarks of their respective owners.

All rights reserved. Reproduction of this document in whole or in part is only permitted with previous written consent from Baumer Optronic GmbH.

Revisions in the course of technical progress and possible errors reserved.

Baumer Group

The Baumer Group is one of the worldwide leading manufacturers of sensors, encoders, measuring instruments and components for automated image processing. Baumer combines innovative technologies and customer-oriented service into intelligent solutions for factory and process automation and offers an unrivalled wide technology and product portfolio. With around 2,600 employees and 38 subsidiaries in 19 countries, the family-owned group of companies is always close to the customer. Baumer provides clients in most diverse industries with vital benefits and measurable added value by worldwide consistent high quality standards and outstanding innovative potential. Learn more at www.baumer.com on the internet.

**Baumer Optronik GmbH**

Badstrasse 30 · DE-01454 Radeberg
Phone +49 3528 4386 0 · Fax +49 3528 4386 86
sales@baumeroptronic.com · www.baumer.com