



Cypress® CX3™ Socionext®  
ISP Dual (21MP and 13MP)  
Autofocus Camera RDK



## Introduction

e-con Systems Cypress® CX3™ Socionext® ISP Dual (21MP and 13MP) Autofocus camera RDK (Reference Design Kit) – TANIA is a Color, Auto-Focus UVC (USB Video Class) compliant dual camera based on Cypress EZ-USB® CX3™, a USB3.1 camera controller, Socionext Milbeaut MBG967 ISP (Image Signal Processor), SONY IMX230 and IMX258 image sensors with auto focus lens assembly. It is ideally suited for streaming video from one or two high resolution image sensors.

Based on the proven EZ-USB® FX3™ Platform, CX3 comes with an ARM9™ CPU and 512K SRAM that provides 200 MIPS of computational power. CX3 supports image sensors or ISP using MIPI CSI-2 interface with up to 4 data lanes and also supports multiple interfaces such as I<sup>2</sup>C, SPI and UART which can be used for interfacing various peripherals.

Socionext®'s Milbeaut MBG967 ISP is equipped with two sets of 1.5Gbps MIPI-Rx 4-lane interfaces, dual ARM core and can process signals from two image sensors simultaneously. It also supports the high-speed, high-accuracy auto focus, Auto Exposure, Auto White balance. You can get the best picture quality from CMOS Image sensor using Socionext's ISP.

## Kit Content

- RDK assembly with housing.
- USB3.0 Type-A to Type-C cable
- Quick Start Guide (this document)

Optional USB 2.0 Type-A to Micro-B cable (not supplied with the kit) is required to use the USB Serial debugging.

## Software Tools and Documentation

Software tools and documentation are available for download at <https://www.e-consystems.com/cypress-cx3-rdk-with-sony-imx230-imx258.asp>. Visit this link, register and download the following documents:

- Quick Start Guide
- Kit User Manual
- e-CAMView Application Installer
- e-CAMView Application User Manual

## CYPRESS® CX3™ Socionext® ISP DUAL (21MP and 13MP) Autofocus Camera RDK

The Cypress® CX3™ Socionext® ISP Dual Autofocus Camera RDK demonstrates streaming of 21MP (only in rear camera), 13MP, 4K2K and 1080p video in YUV/MJPEG formats from IMX230 and IMX258 sensor modules. The e-CAMView or any UVC player application can be used to view this video on a USB Host. The device supports simultaneous streaming of few resolutions from two image sensors.

Customers can use this Reference design along with the Cypress [CX3 SDK](#) to build their own USB3.0 camera.

## Step 1: e-CAMView Application Installation

- Download and install e-CAMView using link [http://www.e-consystems.com/TANIA\\_App\\_Installer.zip](http://www.e-consystems.com/TANIA_App_Installer.zip)
- Install the e-CAMView application on a Windows® 7 / 8 / 8.1/10 PC by following the steps in automatic installer.

Any other USB video class (UVC) player application like [Media Player Classic \(MPC-HC\)](#), [VLC Media Player](#) or [VirtualDub](#) can also be used to view the video. Video chat programs like “Skype™” can also use this camera.

## Step 2: Power ON

- Make sure that the boot mode switches are set as per arrow marks shown below for booting from SPI flash memory (default boot mode).

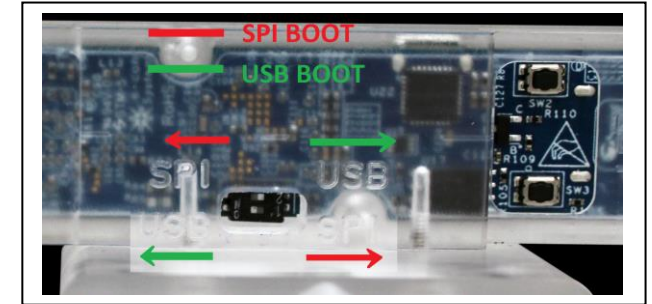


Figure 1. Boot Mode Switch Setting for SPI flash Boot

- Connect RDK to USB port using the USB-C cable provided with kit. The CX3 firmware will execute.
- You can now see “CX3 SNI-Front Camera and CX3 SNI-Rear Camera” under the “Imaging Devices” class in “Device Manager”.

(Note: The automatic driver installation from web will take few minutes for the first time)

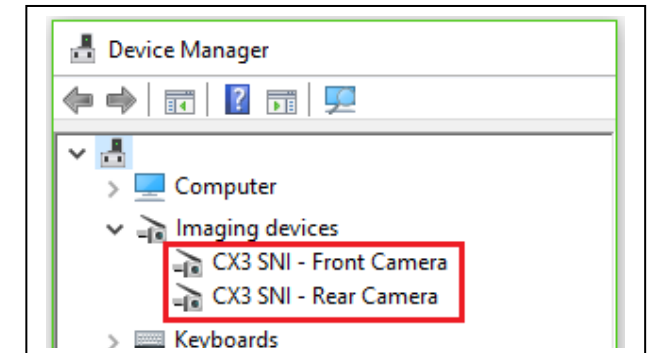
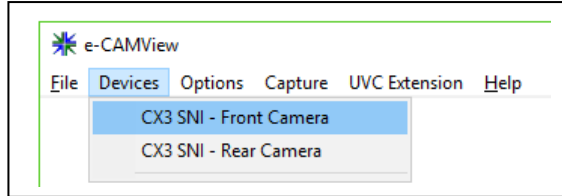


Figure 2. Imaging Devices Class in Device Manager

### Step 3: View the video

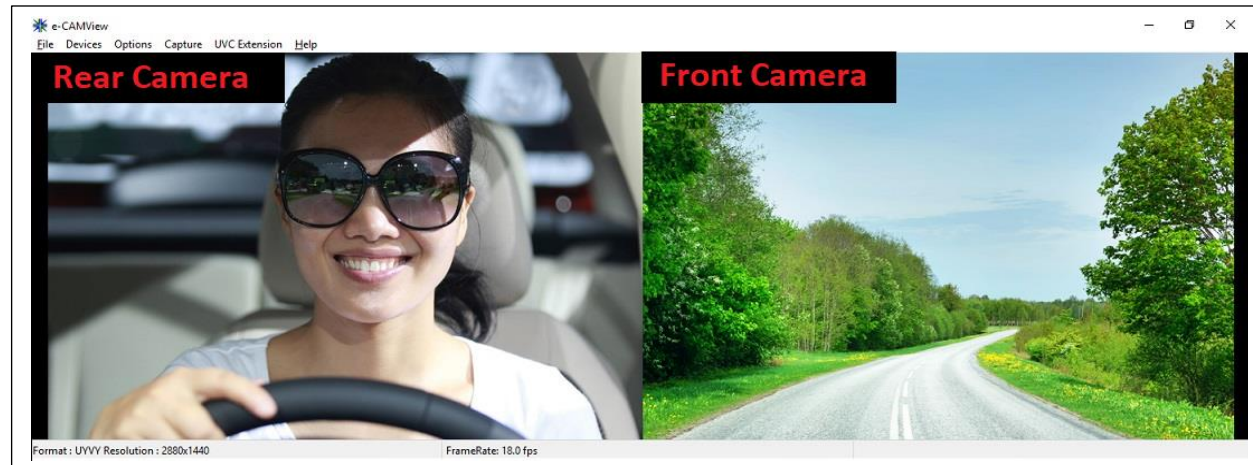
Run the e-CAMView application. Choose “CX3-SNI – Rear Camera or Front Camera” device under the “Devices” menu to view the video preview.



You will get the “e-CAMView Windows Application User Manual” on purchase of Tania kit to learn more on how to change the preview resolution, format, frame rate, still capture and other supported UVC controls and UVC extensions in e-CAMView.

### Step 4: Dual sensor simultaneous video streaming

Using the “Options → Video Capture Pin” menu, select resolution 2880 x 1440, YUV format to view dual sensor simultaneous video streaming



### Step 5: LED control

- To switch ON the LED, press the “LED +” push button. Press it repeatedly to increase the brightness
- To reduce the brightness, press the “LED -” push button. Press it repeatedly to decrease the brightness further and also to switch it OFF.

### Additional Learning Resources:

- Visit [www.cypress.com/cx3](http://www.cypress.com/cx3) for additional learning resources in the form of datasheets, technical reference manuals, and application notes. For custom CX3 firmware development, please download the latest [FX3 SDK](#) from Cypress, the company that supports the CX3 device.
- Visit <https://www.e-consystems.com/cypress-cx3-rdk-with-sony-imx230-imx258.asp> for the latest information about this kit, related documentation, and the e-CAMView.

