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See3CAM_CX3RDK_e-CAM59CX3

Installation Guide

Revision 1.3
07-July-2014

CX3RDK_OV5640

1 Revision History

Rev No	Date	Major Changes	Author
Initial Draft	05-September-2013	Initial Draft	Shanthakumar
1.1	06-September-2013	Reviewed and added changes	Subbarao
1.2	10-October-2013	Added new features	Shanthakumar
1.3	07-July-2014	Added Changes in Section 2	Shanthakumar

2 Introduction

Denebola (See3CAM_CX3RDK) is a USB3.0 UVC Reference Design Kit (RDK) developed by e-con Systems using the EZ-USB® CX3 USB3.0 Peripheral controller from Cypress Semiconductors. The Cypress EZ-USB® CX3 is a USB 3.0 peripheral controller that enables developers to add USB 3.0 connectivity to any image sensors compliant with Mobile Industry Processor Interface (MIPI) Camera Serial Interface Type 2 (CSI-2) standard. The Denebola Reference Design Kit developed using EZ-USB® CX3 is a complete Reference Design Kit and has OmniVision OV5640 CMOS image sensor interfaced to it through 2-lane MIPI CSI-2 interface. This is a fully functional camera reference design kit that can stream uncompressed 720p60, 1080p30 and full 5MP@15fps. e-con Systems, a Silver level partner of Cypress Partner program, has developed the reference design kit for EZ-USB® CX3 from Cypress Semiconductors and this kit can be purchased directly from our webstore.

Based on the proven EZ-USB FX3 Platform, CX3 comes with an ARM9 CPU and 512KB SRAM that provides 200 MIPS of computational power. The CX3 supports MIPI CSI-2 version 1.01, up to 4 date lanes with data speed up to 1Gbps per lane, for a total bandwidth of 4 Gbps. CX3 is ideally suited for high-definition or high-speed image-capturing applications. CX3 supports multiple peripheral interfaces such as I2C, SPI, and UART, which can be programmed to support Pan, Tilt and Zoom or other camera control functions.

Denebola RDK is a two-board solution containing base board designed around Cypress CX3 USB3.0 Peripheral controller and the Camera daughter board (part number: e-CAM59CX3) designed using OmniVision OV5640 CMOS image sensor based Autofocus camera module. E-con also plans to support multiple camera sensor daughter boards in the future that can be used to evaluate CX3 performance and also other CMOS Image sensors.

See3CAM_CX3RDK with e-CAM59CX3 is a UVC compliant device and does not require any drivers to be installed on the PC. The native UVC drivers of Windows, Mac and Linux Operating Systems shall be compatible with this camera. E-con also provides the sample application that demonstrates some of the features of this camera. However, this camera can be utilized any DirectShow application such as Skype etc.

3 Scope

e-con provides a sample DirectShow application, called e-CAMView, along with the See3CAM_CX3RDK. The e-CAMView is a typical DirectShow camera application, but customized to demonstrate the features of See3CAM_CX3RDK. This document describes how to install the e-CAMView step by step on the host PC and how to launch e-CAMView application.

4 Description

The See3CAM_CX3RDK with e-CAM59CX3 is a USB 3.0 device capable of streaming camera frames VGA @ 60 fps, 720p @ 60 fps, 1080p @ 30fps and 5MP @ 15 fps when connected to USB3.0 host port by leveraging the full throughput of USB3.0. It also supports all the features with a USB 2.0 fallback. However, in USB 2.0, See3CAM_CX3RDK with e-CAM59CX3 can stream only in VGA resolution and at about 30 fps only.

The See3CAM_CX3RDK with e-CAM59CX3 has the following UVC camera controls,

- Brightness
- Contrast
- Hue
- Saturation
- Sharpness

- White Balance (Manual and Automatic)
- Exposure (Manual and Automatic)
- Focus (Manual and Automatic)

The sample application e-CAMView for See3CAM_CX3RDK with e-CAM59CX3 can demonstrate the controls supported, switching between preview resolutions and capturing still images.

The next section starts with the preliminary steps involved in installation of the e-CAMView software and launching the application.

5 Installation of e-CAMView

The e-CAMView application can be installed using the installer file **Setup.msi** in the compact disk provided by the e-con Systems. The e-CAMView application installer can be also obtained by mailing to e-con Systems. This is a sample DirectShow application used to demonstrate some of the features of the CX3RDK_OV5640 Camera. The e-CAMView installation steps are explained in detail with the screenshots.

5.1 Step 1 – Welcome screen

As a first step, double click on the e-CAMView installer file – Setup.msi. This will show the Welcome screen as below. Click **Next** button to continue the installation.

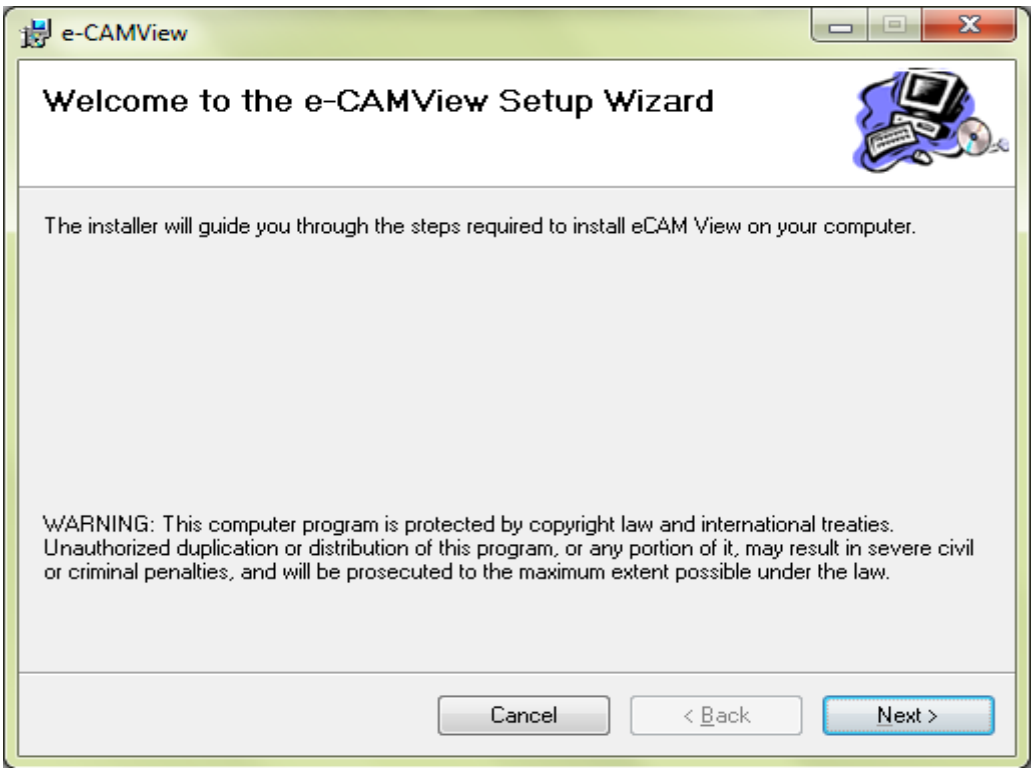

Figure 1: e-CAMView Setup Dialog

5.2 Step 2 – Installation path selection

Click the Browse button to change the default installation folder. You can also change privileged users to whom this application needs to be installed. Click **Next** button to continue.

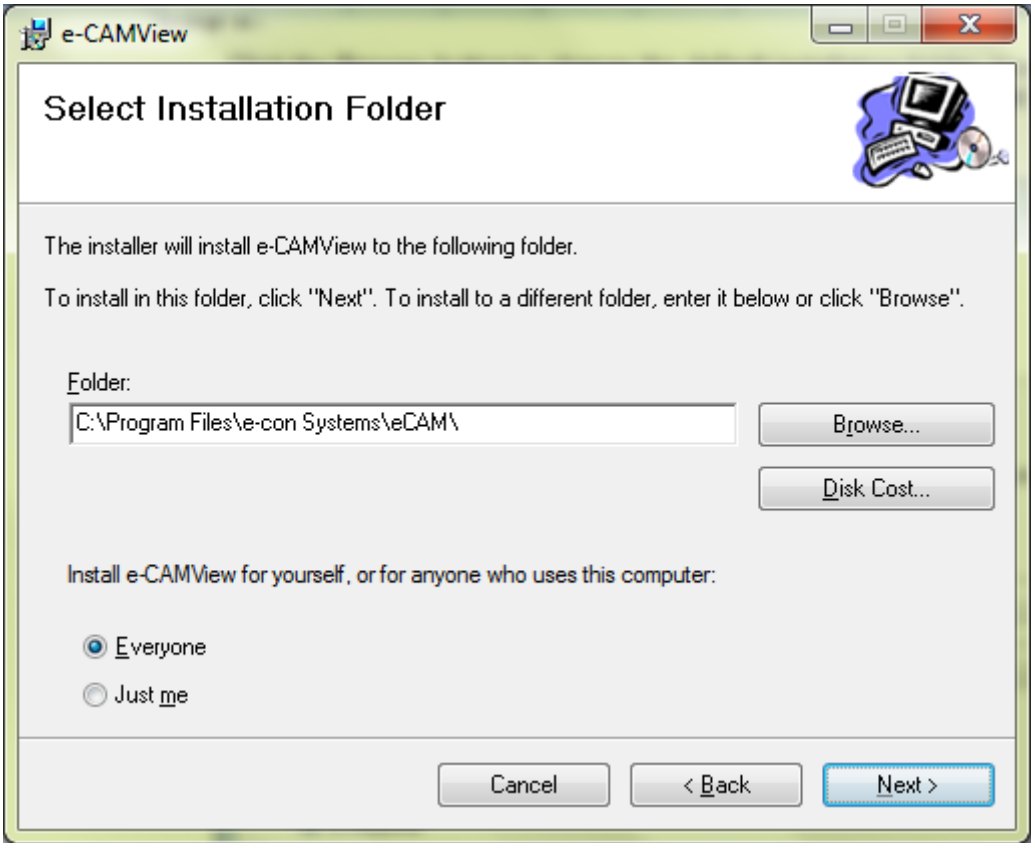

Figure 2: Installation path selection dialog

5.3 Step 3 – Installation confirmation

Click **Next** button to continue the e-CAMView installation.

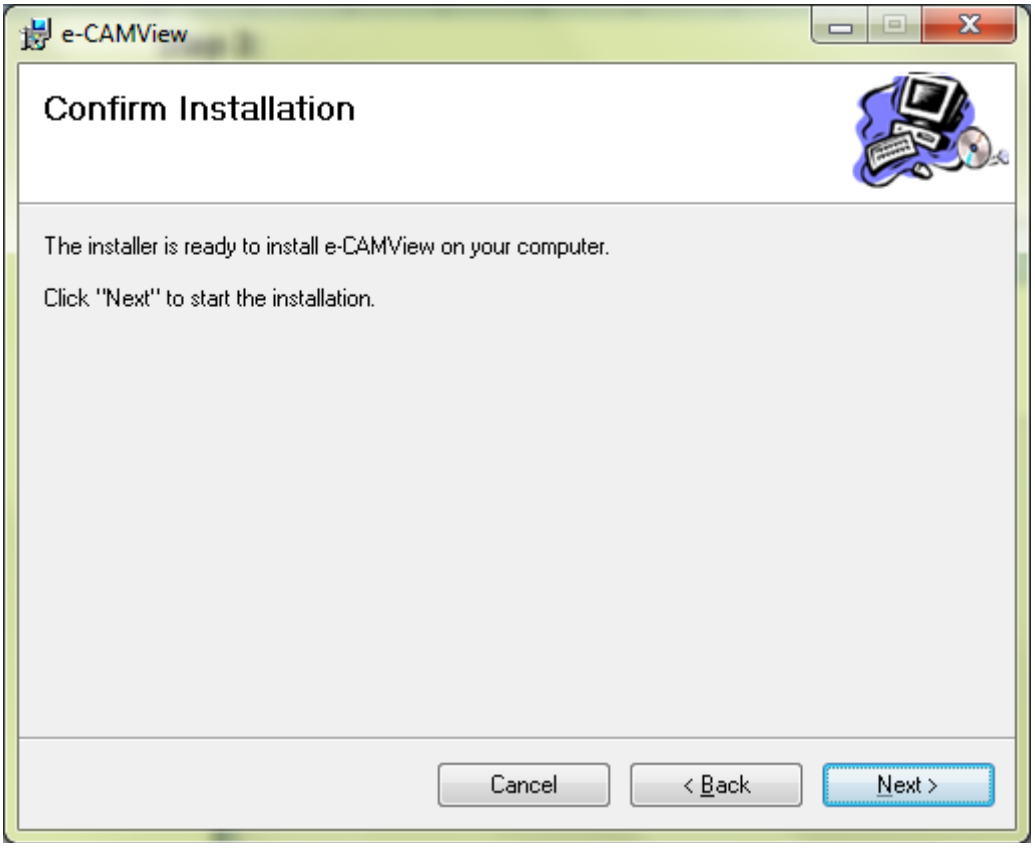

Figure 3: Confirm installation dialog

5.4 Step 4 – Installation process

This is the final stage of installation. During this stage, all required files are copied to specified location.

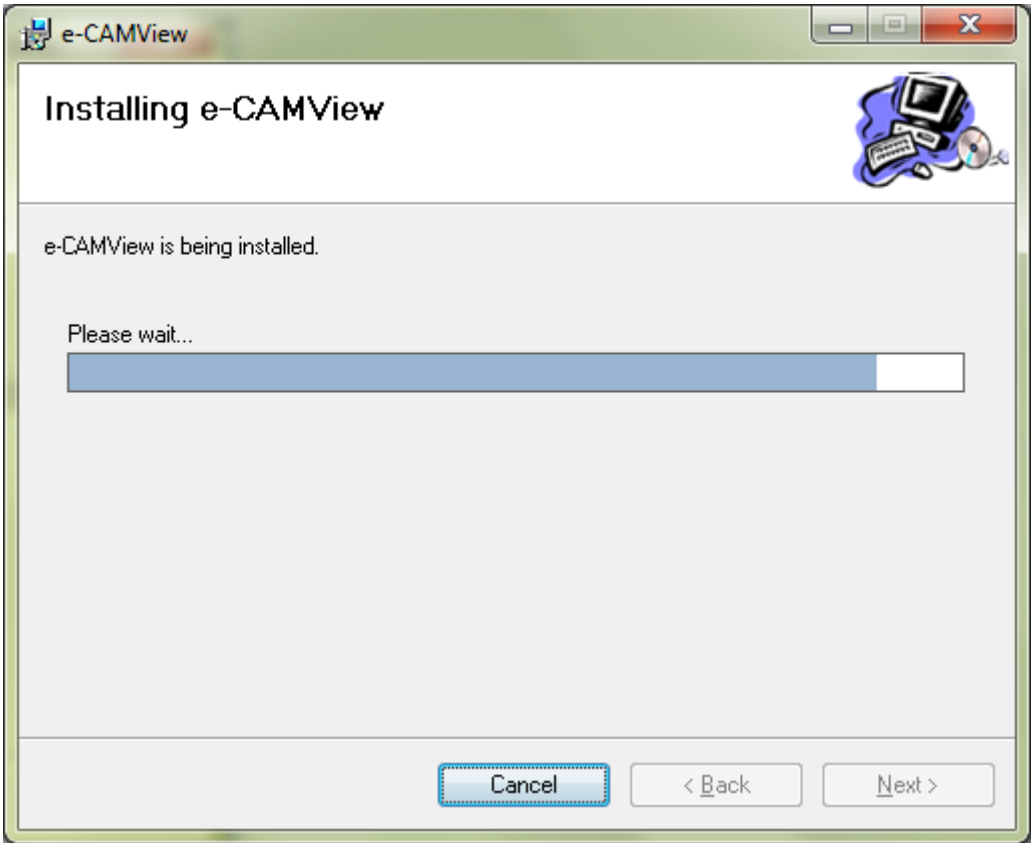

Figure 4: Installation process dialog

5.5 Step 5 – Installation complete

Click **Close** button to exit the setup wizard after the completion of the installation.

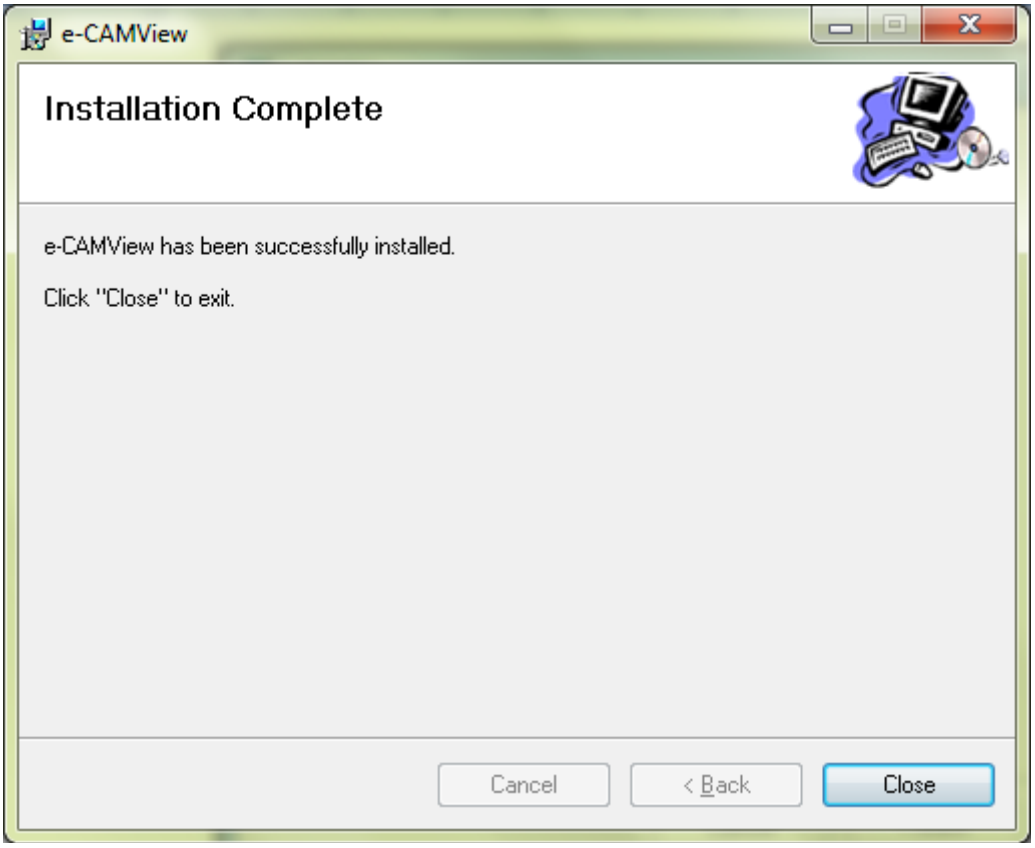

Figure 5: Installation complete dialog

6 Launching e-CAMView Application

To launch the video streaming and capture application e-CAMView click on the **Start -> All Programs -> e-con Systems -> e-CAMView**.

This version of e-CAMView comes with a set of features that can be used to attain the full functionality of See3CAM_CX3RDK with e-CAM59CX3. The Menu bar at the top contains few menu items and the lower status bar shows some information. When the application is running, the current preview resolution and the frame rate are displayed in the lower status bar. For more details please refer **e-CAMView Application User Manual for See3CAM_CX3RDK_e-CAM59CX3** document.

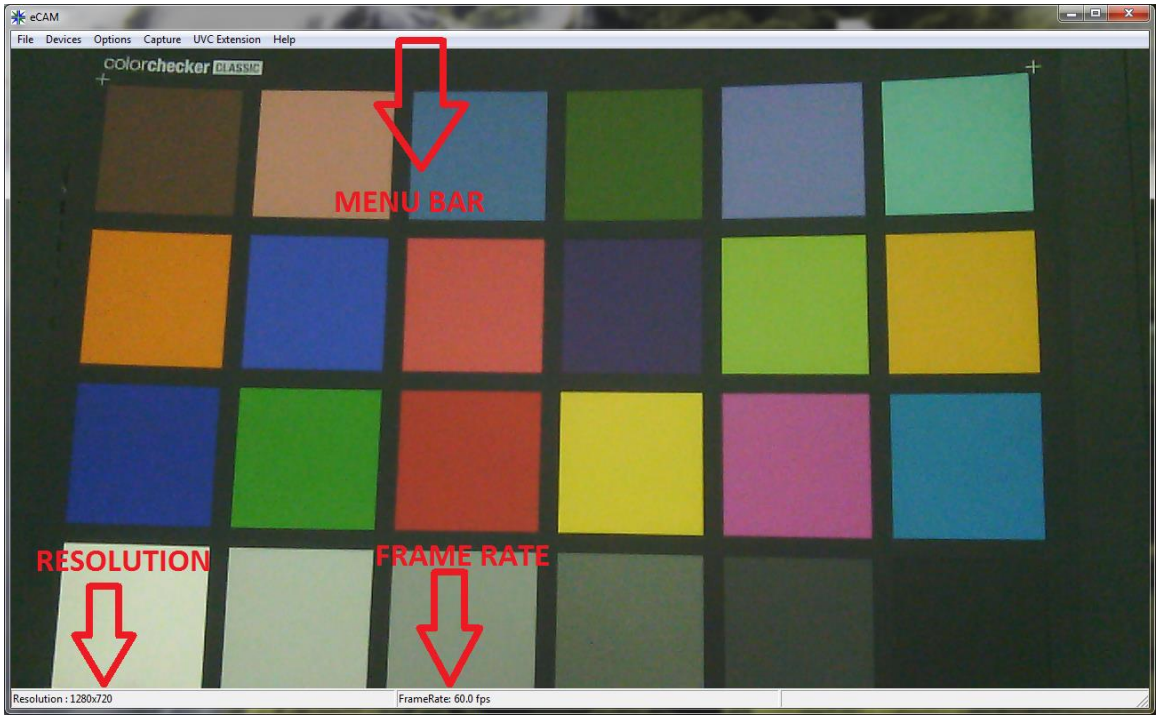

Figure 6: Application launch appearance

7 Conclusion

This document provides the basic steps involved in installing and launching the e-CAMView application. For additional information on the usage of See3CAM_CX3RDK with e-CAM59CX3 refer the specific documents provided.