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KONDOR AX

Advanced System Development Board

VIDEO DEMO GUIDE

UM0030

Rev. 1.1

3.11.2015.

Table of contents

Revision History

Revision	Date	Author	Modification
1.0	26.10.2015.	NDZ	Initial
1.1	3.11.2015.	NDZ	Software preparations edited

Related Documents

ID	Code	Description
1	UM0026	KONDOR AX – User's Manual
2	UM0027	KONDOR AX – Linux BSP Build Setup Guide
3	UM0031	KONDOR AX – Video Demo Reference Design Guide

1 Introduction

The purpose of this demo is to show the video path from camera to FPGA and out to a display connected over HDMI.

2 Downloading FPGA design

1. Connect micro USB cable to U33 connector on the board, install necessary USB/serial port drivers on the PC if required.
2. Start ***Lattice Diamond Programmer*** tool and select matching communication port for transferring data to the board.
3. ***Device Family*** should be ***ECP5UM***; ***Device*** should be ***LFE5UM-85F***.
4. Double click on the cell in ***Operation*** column to open ***Device properties*** dialog box. Set ***Access mode*** to ***JTAG 1532 Mode***; set ***Operation*** to ***Fast Program***.
5. Under ***Programming file***, select the desired ***.bit*** file containing FPGA design.
6. Close the dialog box by clicking ***OK***.
7. ***Menu Design → Program***.

3 Software preparations

Kondor board can be operated using a terminal application on PC. Connect PC to U24 connector on Kondor board using a micro USB cable. Board should be recognized by OS as a virtual port. Start a terminal application (e.g. Tera Term) on PC, choose appropriate virtual port and baud rate 115200 bps. Login using:

```
> root
```

Before downloading files, it is advisable to create a new folder where they should be downloaded. Assuming the name of the folder will be video_demo, located inside /ecp5com/demos folder, next command should be written:

```
> mkdir /ecp5com/demos/video_demo
```

Go to the folder with:

```
> cd /ecp5com/demos/video_demo
```

Once positioned in newly created folder, download all .ko and .sh files from provided demo ZIP file.

The easiest way to download necessary files is to use ZModem option in Tera Term. Select ***File → Transfer → ZModem → Send*** and browse for all files needed. Multiple file download (at once) is possible.

For executable files (.sh), after transfer also do:

```
> chmod +x *.sh
```

Finally, download the libecp5com.so file to /usr/lib/gstreamer-0.10 using the same procedure as mentioned above.

Though the easiest, the above mentioned way is not the fastest, so an alternative download option using file web server (e.g. Mongoose) is described Kondor Ax – User's Manual.

4 Demo

For this demo, use files from /ecp5com/demos/video_demo (i.e. folder where files are downloaded) folder.

4.1 Hardware

This demo needs camera Omnivision OV5640 properly connected to connector J6 and display connected over HDMI cable on J2 connector.

Figure 1: Proper connection of camera

4.2 Design

Downloading is already described in chapter 2. ARM needs to be rebooted afterwards.

4.3 Drivers

Compiled driver binary files are already provided. They are located in /ecp5com/demos/video_demo folder and should be loaded using:

```
> cd /epc5com/demos/video_demo

> ./camera_init.sh
```

4.4 Test

Start video demo using:

```
> ./camera_test.sh
```

This file already uses predefined parameters. Instead of command above, it is possible to run the demo using:

```
> gst-launch mfw_v4lsrc capture-mode=3 ! ecp5com_gstp silent=true ! mfw_v4lsink
```

If other settings are wanted, it can be done by changing command line parameters. Resolution can be changed using different capture-mode setting:

Table 1: Resolution settings

capture-mode	Resolution setting
0	VGA 640x480
1	QVGA 320x240
2	NTSC 720x480
3	PAL 720x576
4	720P 1280x720
5	1080P 1920x1080

If silent is set to true, no debugging info is shown.

The display should show live video stream from connected camera.

5 Ordering Information

Please contact us via email contact@mikroprojekt.hr about item availability and ordering details.

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