VARISCITE LTD.

VAR-EXT-CB402

Quick Start Guide

Rev: 1.1

VARISCITE LTD.

VAR-EXT-CB402 Quick Start Guide

Document Revision History

Revision	Date	Notes
0.9	18/11/2013	Initial
1.0	24/11/2013	Usage section added
1.1	13/01/2013	Digital microphone not assembled on boars

Table of Contents

1 Introduction

This guide provides initial information about how to use the VAR-EXT-CB402 add-on

module on the VAR-DVK-MX6 development kit.

2 Package content

The VAR-EXT-CB402 kit contains the following items:

- VAR-EXT-CB402 Add-on module with the following components assembled
 - 5M pixel Omnivision OV5640 camera module.

3 Pin out of the VAR-EXT-CB402 module

VAR-EXT-CB402 uses standard Mini PCI connector with the following pin out.

Pin #	Name	Function
A1	PWR_EN	Power Enable signal for OV5640 Camera
A2	GND	Ground
A3	MIPI_CSI-2_A_DY3 (neg)	NC (OV5640 has only one clock and two data lanes)
A4	MIPI_CSI-2_A_DX3 (pos)	NC (OV5640 has only one clock and two data lanes)
A5	GND	Ground
A6	MIPI_CSI-2_A_DX2 (pos)	NC (OV5640 has only one clock and two data lanes)
A7	MIPI_CSI-2_A_DY2 (neg)	NC (OV5640 has only one clock and two data lanes)
A8	GND	Ground
A9	MIPI_CSI-2_A_DY1 (neg)	OV5640 Data 1 lane negative
A10	MIPI_CSI-2_A_DX1 (pos)	OV5640 Data 1 lane positive
A11	I2C_B_SDA	Not used
A12	I2C_B_SCL	Not used
A13	MIPI_CSI-2_A_CLKX (pos)	OV5640 Clock lane positive
A14	MIPI_CSI-2_A_CLKY (neg)	OV5640 Clock lane negative
A15	GND	Ground
A16	MIPI_CSI-2_A_DX0 (pos)	OV5640 Data 0 lane positive
A17	MIPI_CSI-2_A_DY0 (neg)	OV5640 Data 0 lane negative
A18	GND	Ground
B1	NC1	NC
B2	NC2	NC
B3	NC3	NC
B4	NC4	NC
B5	NC5	NC
B6	NC6	NC
B7	NC7	NC
B8	DMIC_DATA	Digital microphone Data Lane
B9	DMIC_CLK	Digital Microphone Clock Lane
B10	3VCC	3.3V power supply input
B11	GND	Ground
B12	I2C_A_SCL	I2C Clock - Camera & Autofocus Control I2C Bus
B13	I2C_A_SDA	I2C Data - Camera & Autofocus Control I2C Bus
B14	VIO	VIO (3.3V) Reference voltage
B15	NC8	NC
B16	MIPI_CSI-2_A_PDWN	OV5640 Camera Power down
B17	MIPI_CSI-2_CLK_TTL	OV5640 Camera Clock Input (single ended)
B18	GND	Ground

Table 3 - 1 PCI Express Connector

4 Mechanical view
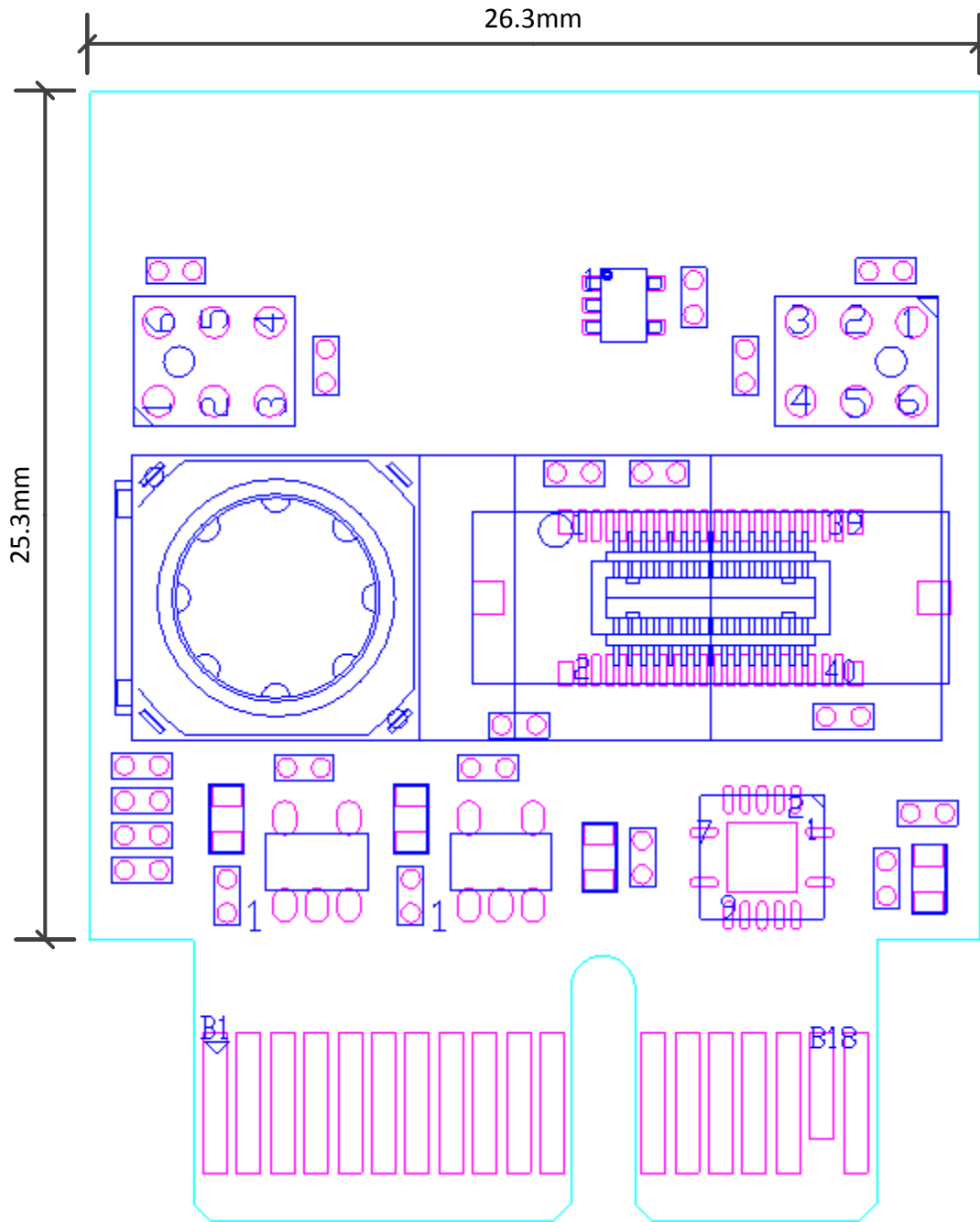
5 Usage of VAR-EXT-CB402 module

Variscite supplies a driver for various Operation Systems: Android Jelly Bean 4.2.2 and Linux 4.1.

5.1 Operating camera on Android

1. Download the latest Recovery Image from Variscite ftp site.
2. Follow VAR-DVK-MX6 Quick Start Guide document and burn Android file system into VAR-SOM-MX6 module from the Recovery Image.
3. Restart the board – Android file system will start
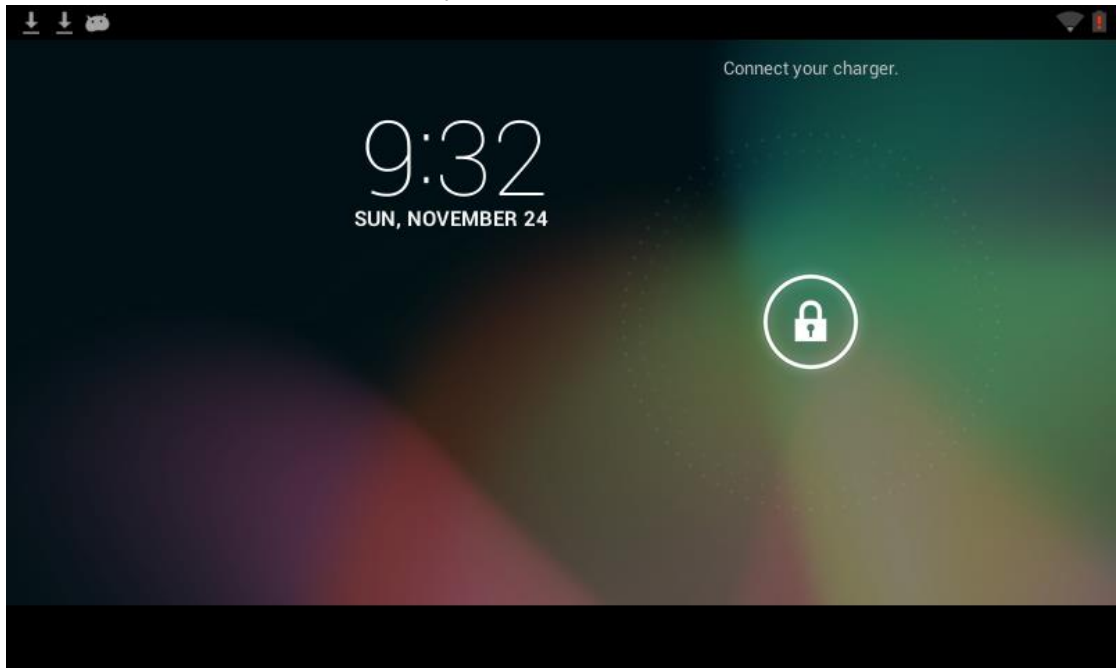
4. Unlock the screen by dragging the lock sign to the upper side of the screen
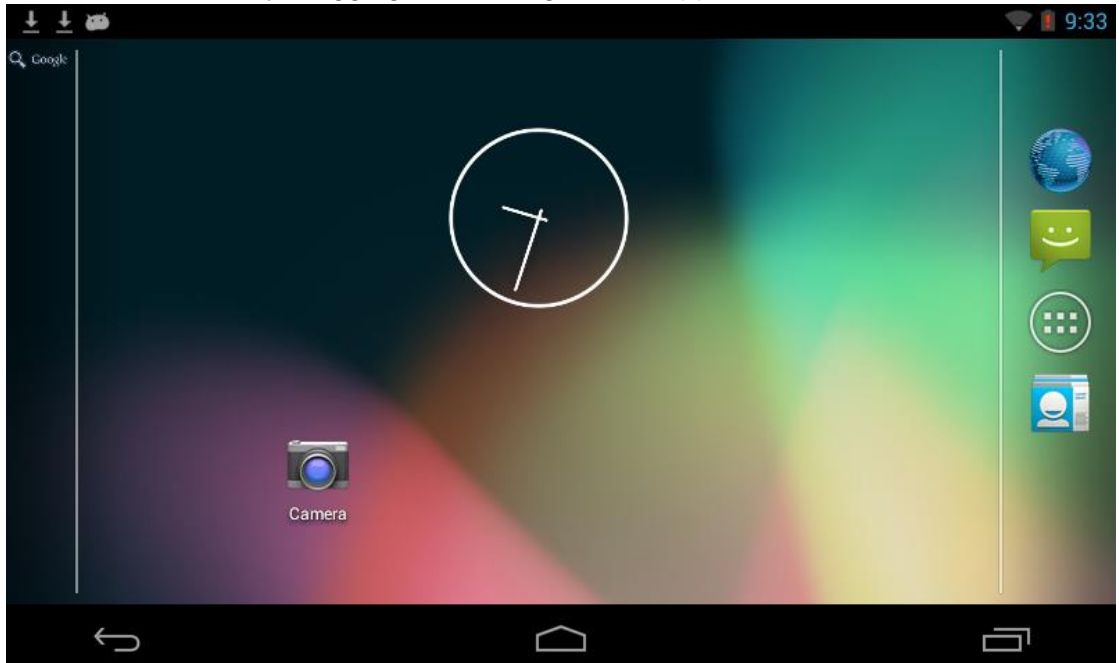
5. Press the menu icon (3rd from the top on the right bar). The Main menu will show.

6. Open the Camera application by pressing the 5th icon. The preview window should appear on the screen.

7. You can press the Record button to start record or switch to the stills mode by pressing camera button in the right lower corner of the screen.
8. You can view the recordings and the still images taken by using Gallery application.
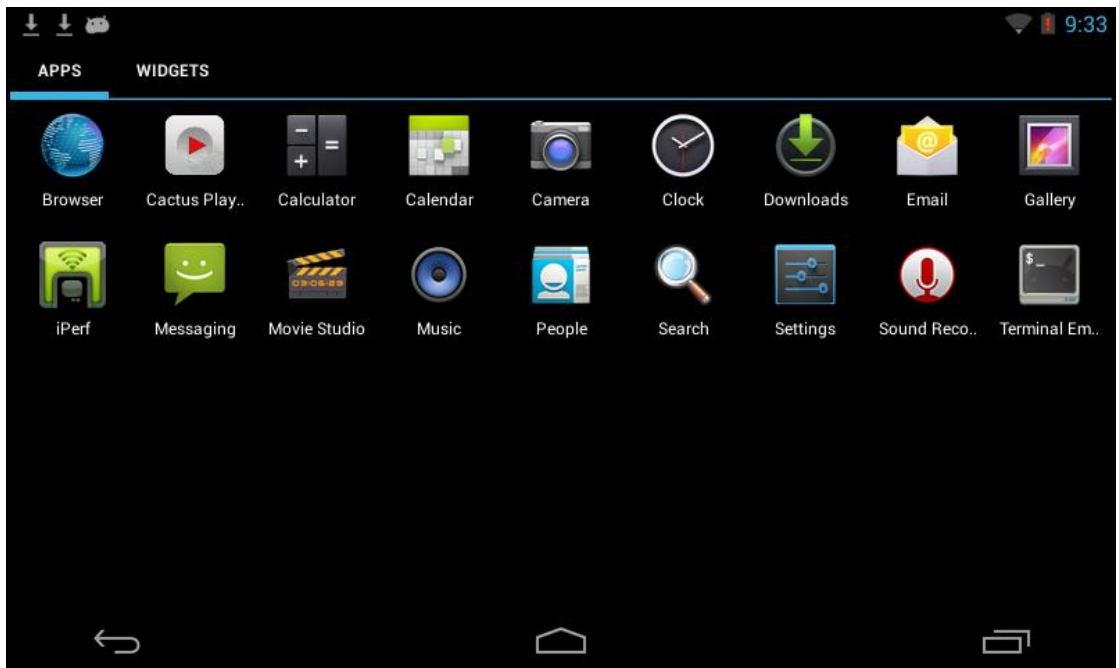
5.2 Viewing camera on Linux

1. Download the latest Recovery Image from Variscite ftp site.
2. Follow VAR-DVK-MX6 Quick Start Guide document and burn Yocto file system into VAR-SOM-MX6 module from the Recovery Image.
    Note: LTIB file system is deprecated so burn default file system will write Yocto Linux to NAND memory.
3. Reset the board. The Yocto Linux will boot up.

4. Open serial console on the PC and connect to the EVK board.
5. Login as root and enter the following commands:
    a. modprobe ov5642_camera
       Load the camera driver
    b. modprobe mxc_v4l2_capture
       Load the capture driver
    c. /etc/rc5.d/S01xserver-nodm stop
       Close the running xserver (the screen will go black)
    d. gst-launch mfw_v4lsrc ! mfw_v4lsink
       Start preview

6. You will see the preview on the screen.

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