EVEREST VISION KIT

Getting Started

EVEREST VISION KIT Getting Started		created:	S. Rieche	Date	2022-05-19
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1.   Revision History

The revision history describes the changes that were implemented in the document. The changes are listed by revision, starting with the most current publication.

1.1   Revision 1.0

Revision 1.0 is the first publication of this document.

2. Getting Started

This design implements an interface to the OnSemi XGS12000 camera module with image enhancement and edge detection. The output of the livestream is done by HDMI in Full HD (1920x1080@60p). A Windows application is used to activate and configure the EVEREST-VISION-KIT. It offers also features like changing color values, contrast and brightness, toggle edge detection, scale, camera build in test pattern and gamma correction. Beside that any random SPI register could be read and (if writable) modified.

2.1 Prerequisites

All hardware needed comes with the VISION KIT:

Item	Quantity
Everest DEV Board	1
12 V / 5 A wall-mounted power adapter	1
USB 2.0 A male to mini-USB B cable for UART / Programming interface to PC	1
OnSemi XGS12000 camera	1
Appletec optic	1
Tripod	1

The Windows GUI software, a precompiled STPL file and further documentation could be find under: https://www.img-nordhausen.de/downloads/#polarfire-everest-dev-board

For design files please contact: info@img-nordhausen.de

2.2 Handling the Board

Pay attention to the following points while handling or operating the components of the VISION KIT: **Handle the board with electrostatic discharge (ESD) precautions to avoid damage.**

2.3   Board Setup

Please connect the camera with the EVEREST-DEV-BOARD by the FMC connector and a Full HD monitor or TV set via HDMI. For the Windows GUI a USB connection to the PC is required. Then plug in the 12 V DC jack.

The EVEREST VISION KIT is preconfigured with the following settings:

2.3.1   Toggle -Switch S5 – SC SPI-Flash enable

SWITCH	SC SPI-FLASH
S5-1 (marking)	DISABLE
S5-2	**ENABLE**

2.3.2   DIP-Switch S8 – FMC Voltage Selector

SWITCH	FMC VOLTAGE
S8-1 off, S8-2 off	1.8 V
S8-1 on, S8-2 off	**2.5 V**
S8-1 off, S8-2 on	undefined (not recommended)
S8-1 on, S8-2 on	3.3 V

2.3.3   Toggle -Switch S9 – VDDAUX2 & VDDAUX5 Voltage

SWITCH	VDDAUX2 & VDDAUX5
S9-1 (marking)	2.5 V
S9-2	**FMC voltage**

Figure 1: EVEREST VISION KIT

3. Installing and Running the Demo

Please install the Windows application by clicking the Setup.msi file. Click the "Next" button and follow the instructions.
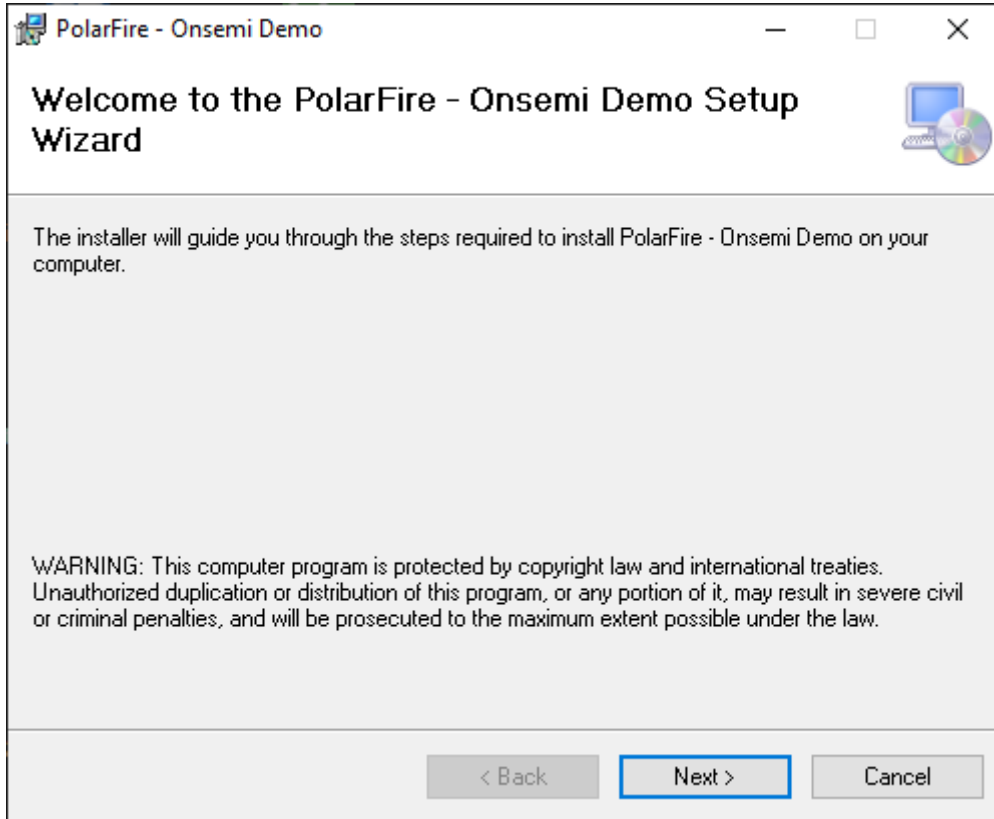

Figure 2: Windows application Setup

After the setup is finished you will find an icon labeled with "Everest Vision Kit" on your desktop.

Figure 3: Windows application after startup

Next push the "Connect" button. The application is looking automatically for the COM-Port and initiate the camera and HDMI interface. After a few seconds the disabled buttons become functional and the live image is streamed over HDMI to the monitor.
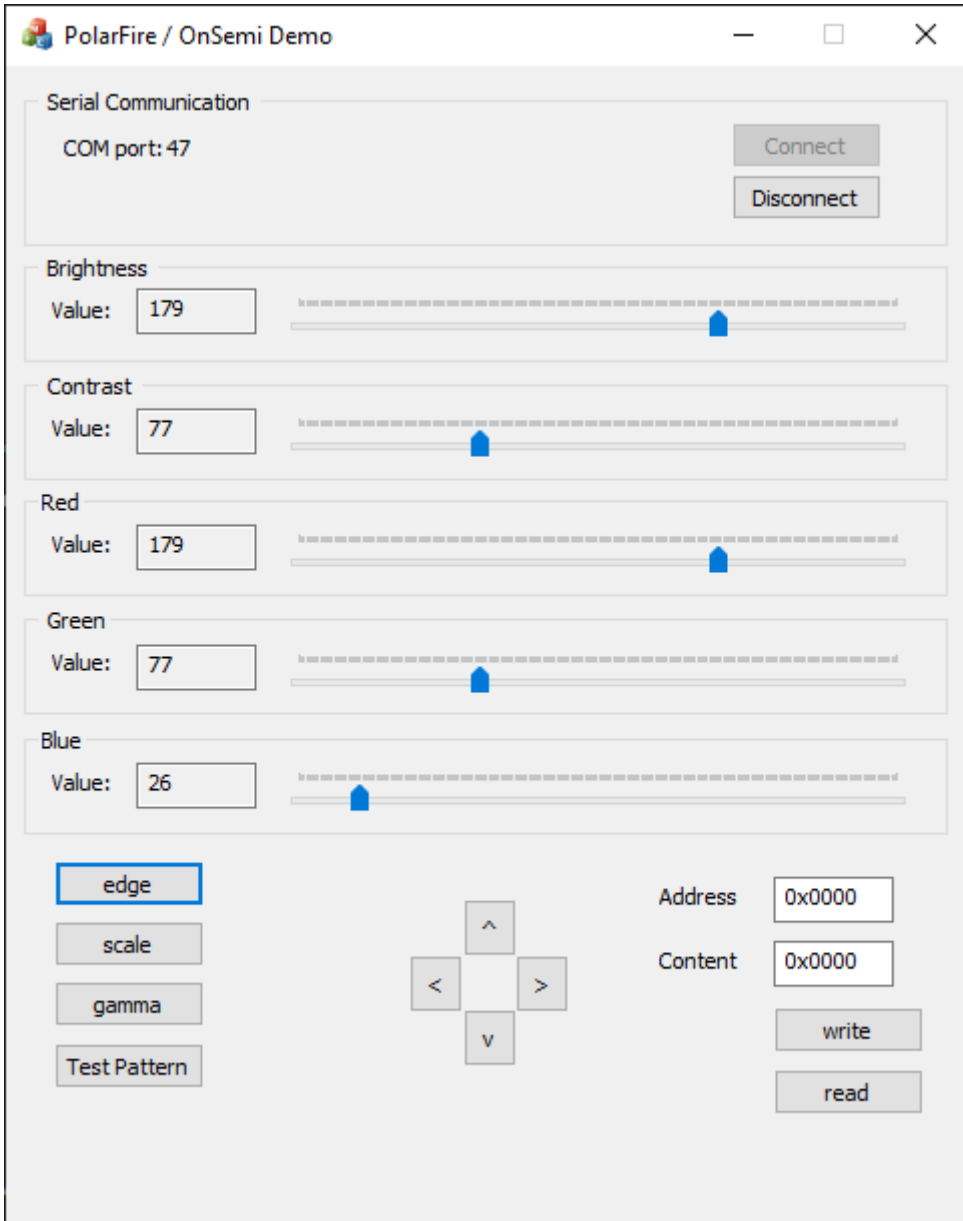
Figure 4: Windows application after successful connection