



The Open-Source Flight Computer

Developer Guide

May 10, 2016
Für OpenVario Version
<http://www.openvario.org>

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Preface

Warnings and precautions



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1 Revision History

Revision	Date	Changes	Author
0.1		born	TBR
0.2	20151230	Changed machine variants Added this revision history	TBR
0.3	20160209	Updated Linux Build section	PWO

2 Introduction

3 Setup Build Environment

To build the OpenVario SD Card Image a build environment based on Linux is necessary. The preferred and tested distribution is Ubuntu 14.04

There are two ways to come to a own build environment:

- Use the preinstalled VDI image provided at <http://www.openvario.org>
- Install a Linux machine and setup the requirements by your own

3.1 Using the preinstalled VDI image

3.1.1 Download the VDI image

The provided image was created with VirtualBox[®] <http://www.virtualbox.org>. VirtualBox is available for Linux as well as for Windows[®].

- Download and install VirtualBox[®] from <http://www.virtualbox.org>.
- Download the VDI image from <http://www.openvario.org>.
- Import the downloaded VDI image using "Appliance import.." from File menu in VirtualBox Manager.
- Start the newly created VirtualMachine.
Login with:
user: **build**
password: **build**

3.2 Build on Debian Linux

3.2.1 Setup Openembedded environment

To build the Linux image for the OpenVario Flight Computer the Openembedded Build Environment is used. This environment is structured in layers and recipes. This layers are setup automatically using the scripts provided by <http://www.openvario.org>.

3.2.2 Install required Packages

On Debian Jessie 8.3:

You need the following packages:

```
sudo apt-get install build-essential \
sudo texi2html \
sudo chrpath \
sudo git
```

3.2.3 Checkout setup scripts

At the command prompt of your build machine type:

```
git clone http://git-ro.openvario.org/rootfs.git
cd rootfs
git checkout angstrom-v2014.12-yocto1.7
MACHINE=<DEVICE> ./oebb.sh config <DEVICE>
```

At the moment *DEVICE* can be:

- **openvario-43rgb**: 4,3" TFT Variant
- **openvario-57lvds**: 5,7" TFT Variant
- **openvario-7-CH070**: 7" TFT Variant CH070 Display
- **openvario-7-PQ070**: 7" TFT Variant PQ070 Display

3.2.4 Build the image

Now building the image is a simple task:

```
source environment-angstrom-v2014.12
bitbake <TARGET>
```

You have to specify what *TARGET* you want to build. Popular targets are:

- **ov-image**: The complete SD Card image
- **ov-image-maps**: The complete SD Card image including the maps



Build a *TARGET* the first time can take a long time (up to several hours !) depending on your build machine. So be patient ...

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