Embedded boards driver for IDS industrial cameras

The following information is related to the GNU/Linux system that is installed on the embedded board.

Architecture

ARMv7 Cortex-A	
With dedicated FPU (hf = hard float)	Setup name contains “hard float”, “hf” or “armhf” ; supported from **VFPv3-D16** on
Without dedicated FPU (sf = soft float)	Setup name contains “soft float”, “sf”, or “armel”
Processor	Little-endian only

Distinguishing between hard float and soft float

If you do not know, which FPU you are using, run the following command on the `libc.so.6` file:
`readelf -A libc.so.6 | grep Tag_ABI_VFP_args`

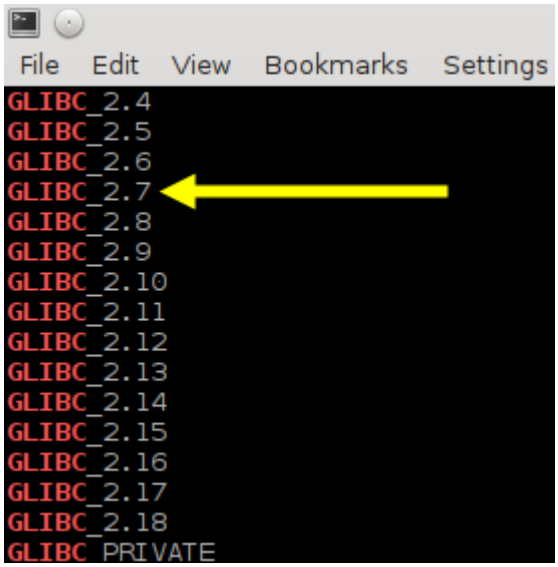
For hard float the output is:
`Tag_ABI_VFP_args: VFP registers`
Note: If the string above is not returned, you are running a soft float system.

If you do not know the directory of the `libc.so.6` file, you can search for it using
`find / -name libc.so.6`

glibc version

The minimum required version is: **GLIBC_2.7**

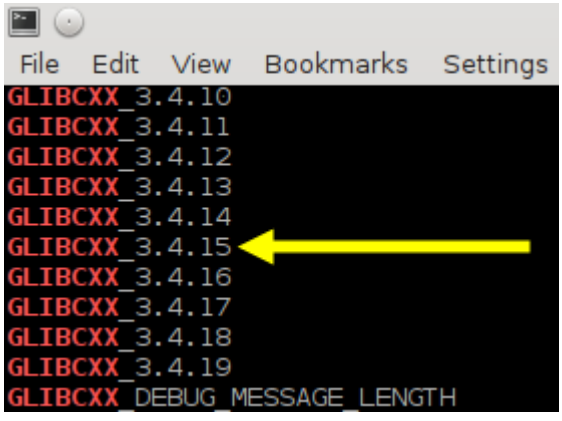
- You can query the version with `strings /lib/arm-linux-gnue.../libc.so.6 | grep GLIBC`



libstdc version

The minimum required version is: **GLIBCXX_3.4.15**

- You can query the version with `strings /usr/lib/arm-linux-gnue.../libstdc++.so.6 | grep GLIBCXX`



Reference boards

- Low-End
  Beaglebone Black (ARM-SoC: Cortex A8 1 x 1.0GHz)
- Mid-End
  Boundary-Devices BD-SL-i.MX6 (ARM-SoC Cortex A9 4 x 1.0GHz [Freescale i.Mx6])
- High-End
  ODROID-XU3 (ARM-SoC: Octa-Core Cortex A15 4 x 2.0 GHz/Cortex A7 4 x 1.5 GHz Exynos5422)

Installing the SDK

Important: To run the commands you must be “root”.

1. Copy the TAR archive to your home directory on the target system.
2. Unpack the archive with the **tar** program on the target system:
   `tar xvf uEyeSDK-[version number]-ARM_LINUX_IDS_[setup type].tar -C /`
3. Execute the setup script
   `/usr/local/share/ueye/bin/ueyesdk-setup.sh`
4. After the installation, start the uEye daemon:
   a. Via the IDS Camera Manager, if you use a graphical user interface.
   b. Per command line
      USB daemon: `/etc/init.d/ueyeusbdrc start`
      ETH daemon: `/etc/init.d/ueyeethdrc start`

Uninstalling the SDK

Important: To run the commands you must be “root”.

- Execute the uninstall script
  `/usr/local/share/ueye/bin/ueyesdk-uninstall.sh`

Further dependencies

GUI programs

The following libraries must be installed if you want to use the GUI programs uEye Demo or IDS Camera Manager:

- `libQt3Support.so.4`
- `libQtGui.so.4`
- `libQtXml.so.4`
- `libQtSql.so.4`
- `libQtNetwork.so.4`
- `libQtCore.so.4`

Saving images as JPEG or PNG

The following library must be installed if you want to save images as JPEGs or use the special JPEG mode of the XS camera:

- `libjpeg.so.62`

The following library must be installed if you want to save images as PNGs:

- `libpng12.so.0`

Installing on Debian- or Ubuntu-based systems

For image saving or using the GUI programs on Debian- or Ubuntu-based systems, you must install the following packages for example by using `apt-get`:

- `libqtgui4`
- `libqt4-network`
- `libqt4-qt3support`
- `libjpeg62`
- `libpng12-0`

Important information for Raspberry Pi

Enlarging memory

For operating high resolution cameras like the XS it is necessary to enlarge the “shared-memory” (in this case up to 15 MB). Add the following line to the `/etc/fstab` file:

```
tmpfs /dev/shm    defaults,size=150m      0     0
```

Adjusting GPU memory for OpenGL demo

To use the OpenGL demo on Raspberry Pi, you must adjust the GPU memory. You can do this manually by adding following line to the `/boot/config.txt` file. Afterwards you have to reboot.

```
gpu_mem512=192
```

Alternatively you can use the consol tool `raspi-config`. Enter in the menu “Advanced Options > A3 Memory Split” the value 192. Afterwards you have to reboot.