

# Cross Compiling OV5640 driver

(host to board)

## Create a working directory

```
mkdir ov5640_build  
cd ov5640_build
```

## Clone Armbian tooling

```
git clone https://github.com/igorpecovnik/lib --depth 1
```

## Clone latest OV5640 driver for H3

```
git clone --branch Armbian_H3 https://github.com/avafinger/ov5640
```

## Download kernel sources & compile

```
mv lib/compile.sh .  
sudo ./compile.sh  
SELECT => Kernel, u-boot and other packages  
SELECT => Choose your board  
SELECT => Default 3.4.x - 3.14.x legacy
```

## Backup original ov5640 driver the latest OV5640 driver to linux-sun8i

```
sudo mv sources/linux-sun8i/sun8i/drivers/media/video/sunxi-vfe/device/ov5640.c  
sources/linux-sun8i/sun8i/drivers/media/video/sunxi-vfe/device/ov5640.c.original
```

## Copy latest OV5640 driver to linux-sun8i kernel tree

```
sudo cp ov5640/ov5640.c  
sources/linux-sun8i/sun8i/drivers/media/video/sunxi-vfe/device/ov5640.c
```

## Compile latest OV5640 driver

```
cd sources/linux-sun8i/sun8i  
  
sudo make ARCH=arm CROSS_COMPILE=arm-linux-gnueabihf- -j2  
INSTALL_MOD_PATH=output SUBDIRS=drivers/media/video/sunxi-vfe
```

## Copy ov5640.ko to board and reload OV5640 driver (on board)

```
rmmod vfe_v4l2  
modprobe vfe_v4l2  
Insmod drivers/media/video/sunxi-vfe/device/ov5640.ko  
modprobe vfe_v4l2
```

# Retrieving frames from OV5640

## fswebcam

```
fswebcam -r 640x480 -p YUV420P -> cam640x480_1.jpg
```

```
fswebcam --Hflip 1 -r 640x480 -p YUV420P -> cam640x480_1.jpg
```

## v4l2/cap.c

```
apt-get install libopencv-dev python-opencv
```

```
git clone https://github.com/Grabber/ov5640_capture
```

```
sudo gcc cap.c -o cap $(pkg-config --libs --cflags opencv) -lm -O3
```

## FPS x RESOLUTION

	7.5 FPS frame_rate=1	15 FPS frame_rate=2	30 FPS frame_rate=3	60 FPS frame_rate=4	90 FPS frame_rate=5	120 FPS frame_rate=6
2592x1936 QXGA	YES	NO	NO	NO	NO	NO
2048x1536 QXGA	YES	NO	NO	NO	NO	NO
1920x1080 1080P	YES	YES	NO	NO	NO	NO
1600x1200 UXGA	YES	YES	NO	NO	NO	NO
1280x720 720P	YES	YES	YES	NO	NO	NO
1024x768 XGA	YES	YES	YES	NO	NO	NO
800x600 SVGA	???	YES	YES	NO	NO	NO
640x480 VGA	???	YES	YES	NO	NO	NO
320x240 QVGA	???	???	YES	NO	NO	NO
176x144 QCIF	YES	YES	YES	NO	NO	NO

# Driver Issues

<https://gist.github.com/Grabber/2deeb4b07d56774ec2b000518eb58e4a>

**#2 frames are hflip between different resolutions.**

<https://github.com/avafinger/ov5640/issues/1>

[https://www.dropbox.com/s/trdn83esgmbkyg9/ov5640\\_lex.zip?dl=0](https://www.dropbox.com/s/trdn83esgmbkyg9/ov5640_lex.zip?dl=0)

<https://drive.google.com/file/d/0B3900WfBcV9BWkFiakpQWkZLZVU/view?usp=sharing>

## Preparing OV5640 driver for Armbian

```
cd ov5640_build
cp lib/compile.sh .
vim compile.sh
set CREATE_PATCHES to "yes"
sudo ./compile.sh
select Kernel, u-boot and other packages
select your arm board
select default 3.4.x - 3.14.x legacy
press ENTER at "Make your changes in this directory: .../u-boot/..."
open a new terminal and replace
sources/linux-sun8i/sun8i/drivers/media/video/sunxi-vfe/device/ov5640.c with
newer ov5640 driver version
press ENTER at "Make your changes in this directory: .../linux-sun8i/..."
move generated patch from userpatches/patch/kernel-sun8i... to lib/patch
```

## Compatibility / FEX files

	OV5640 AF SinoVoip	OV5640 FF VVision	OV5640 FF GeekSys	
<b>Banana M2+</b>				
<b>Orange PCPlus</b>	<a href="https://gist.github.com/Grabber/6f250093f6c163dc3d078b3c2c620ae3">https://gist.github.com/Grabber/6f250093f6c163dc3d078b3c2c620ae3</a>			

## **References, Datasheets and Others**

[https://dl.dropboxusercontent.com/u/11164079/OV5640\\_CSP3\\_DS\\_1.0\\_Litearray.pdf](https://dl.dropboxusercontent.com/u/11164079/OV5640_CSP3_DS_1.0_Litearray.pdf)

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