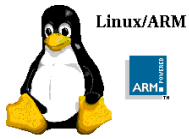
Audio & Webcam Installation Guide for EM2440-III



By Group ArmTalk

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This document guides the user through:

1. Getting the Audio Installed
2. Getting the Microphone Installed
3. Getting the Webcam Installed

Formatting:

1. Commands starting with > are Linux console commands:

```
> echo "Hello world!"
```

2. Commands starting with *uboot*> are U-Boot console commands:

```
uboot> printenv
```

3. Almost all commands are case sensitive in Linux and U-Boot.

Table of Contents

Audio Driver Setup

1. Install Driver

1.1 Configure the kernel's makefile using its configuration menu:

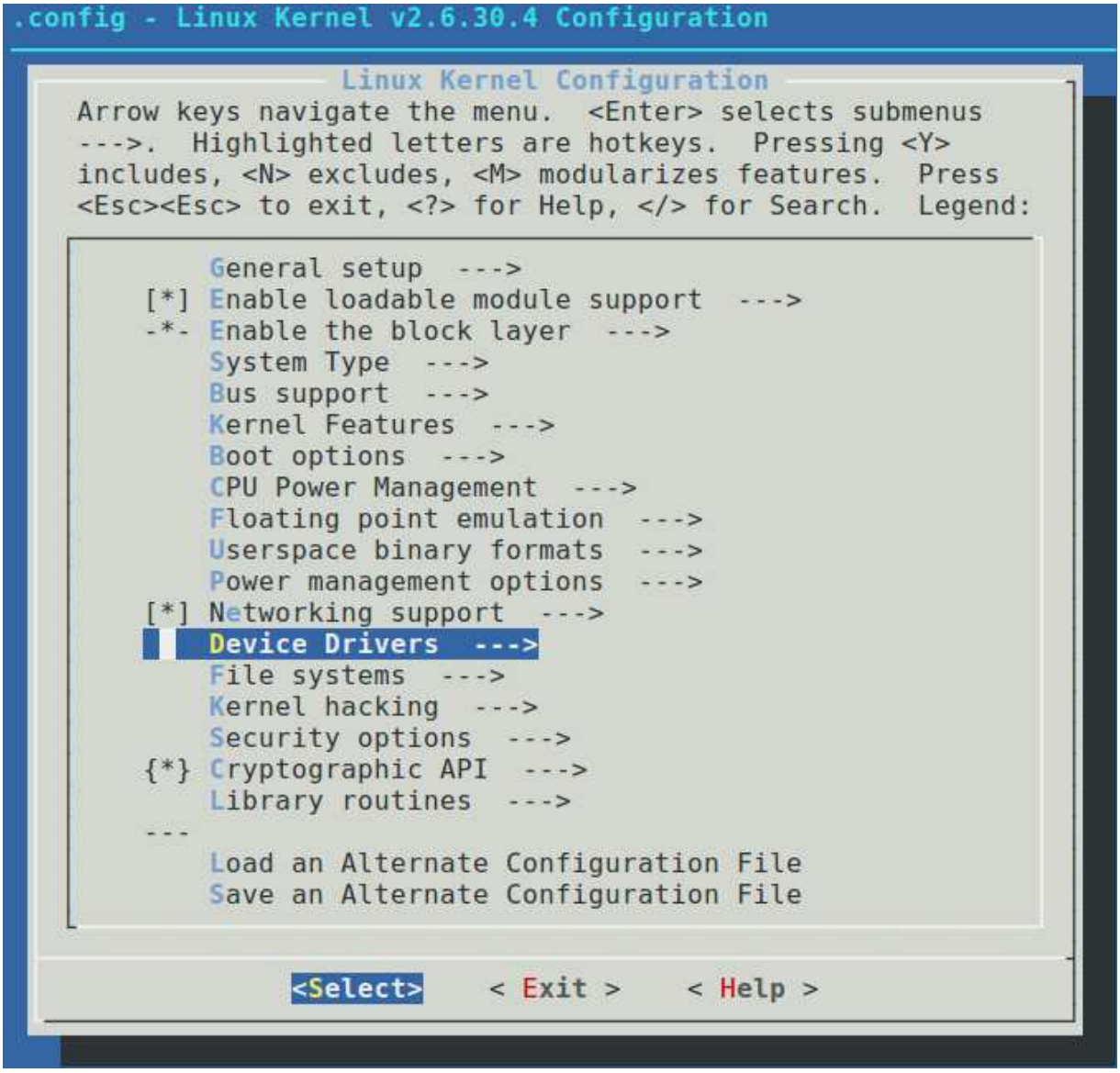
1. use menuconfig to enable the driver
   - Launch the menuconfig tools

     > make menuconfig

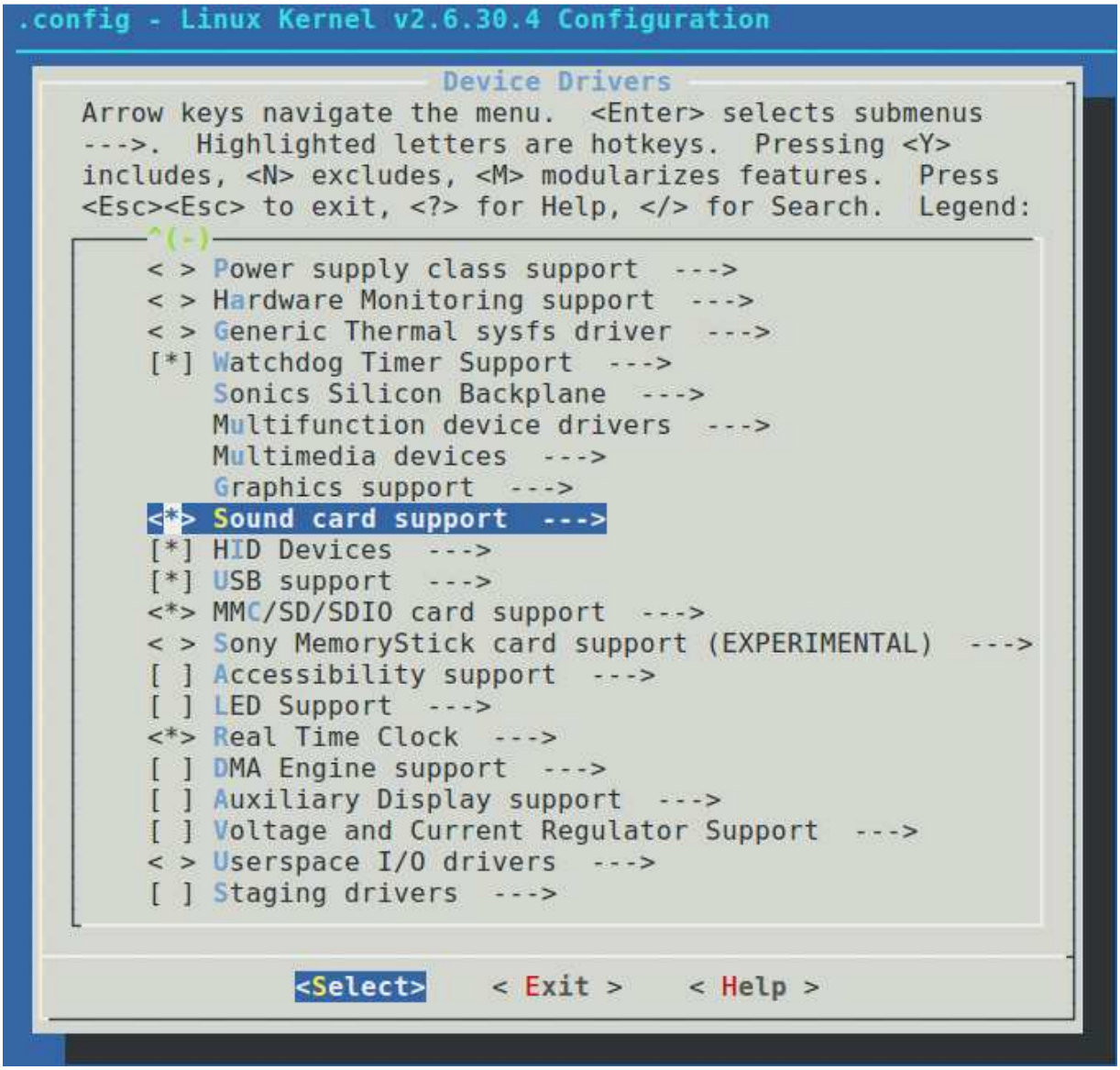
     ```
     [matthew@matthew-ubuntu|~/private/linux-2.6.30.4]
     >make menuconfig
     ```

   - Go to

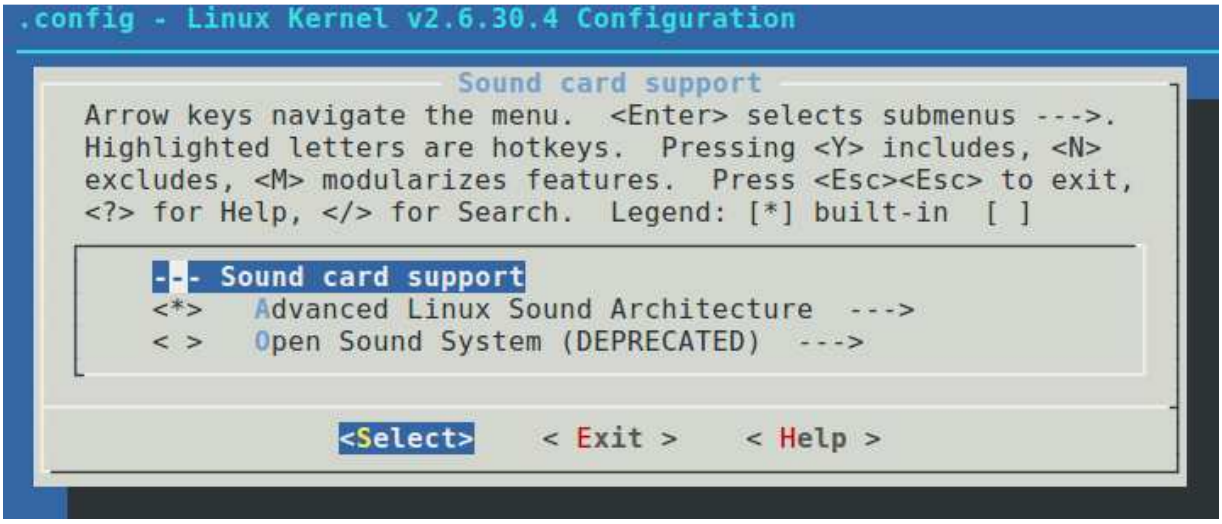
     -> “Device Driver”



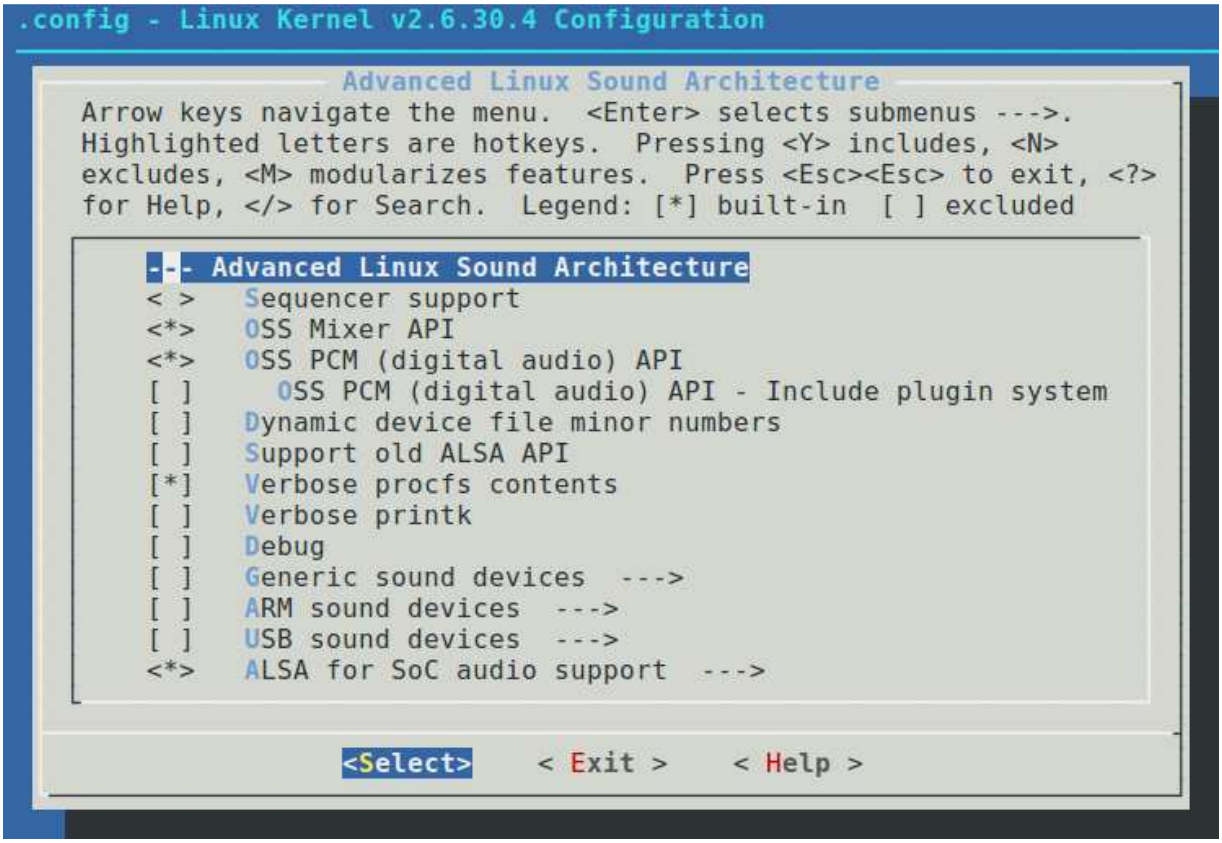
-> "Sound Card Support"



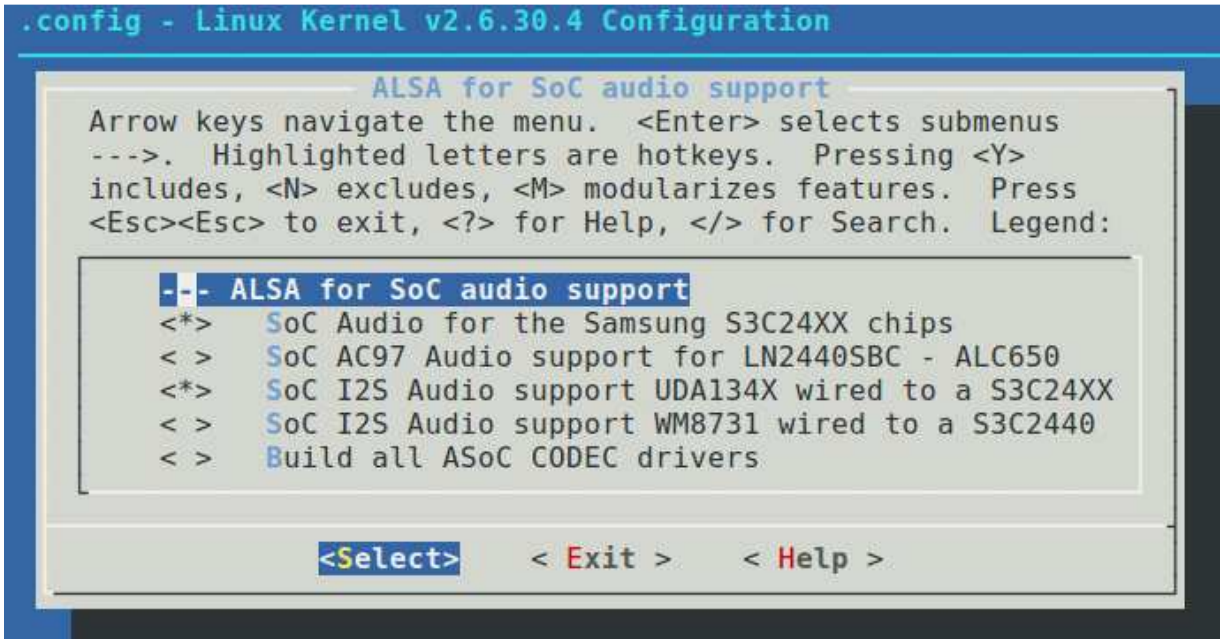
-> "Advanced Linux Sound Architecture"



-> "ALSA for SoC audio support"



- Enable the "Soc Audio for the Samsung S3C24XX chips"
and "SoC I2S Audio support Wm8731 wired to a S3C2440"



- Press the right arrow key to exit button and exit menuconfig. Make sure you have the file.

2. build zImage
   > make zImage
3. copy zImage to the share directory
   > cp $HOME/cmpt433/private/Linux-2.6.30.4/arch/arm/boot/zImage $HOME/cmpt433/public/
4. on the Target, enter uboot, and download the zImage
   uboot> tftpboot 0x30008000 ${TFTP_ROOT}/zImage
   uboot> nand erase kernel; nand write.jffs2 0x30008000 kernel ${filesize}

2. Testing the Audio Driver

2.1 Testing the speaker

0. plugin speaker to the speaker port (labelled with green)

1. on the Target make sure dsp exist
   > ls /dev/dsp

2. Launch madplay to play audio (Step I must be done before this step)
   > madplay test.mp3

2.2 Testing the Microphone Driver

0. Plug in microphone to the mic port (labelled with red)

1. cat the microphone driver
   > cat /dev/dsp

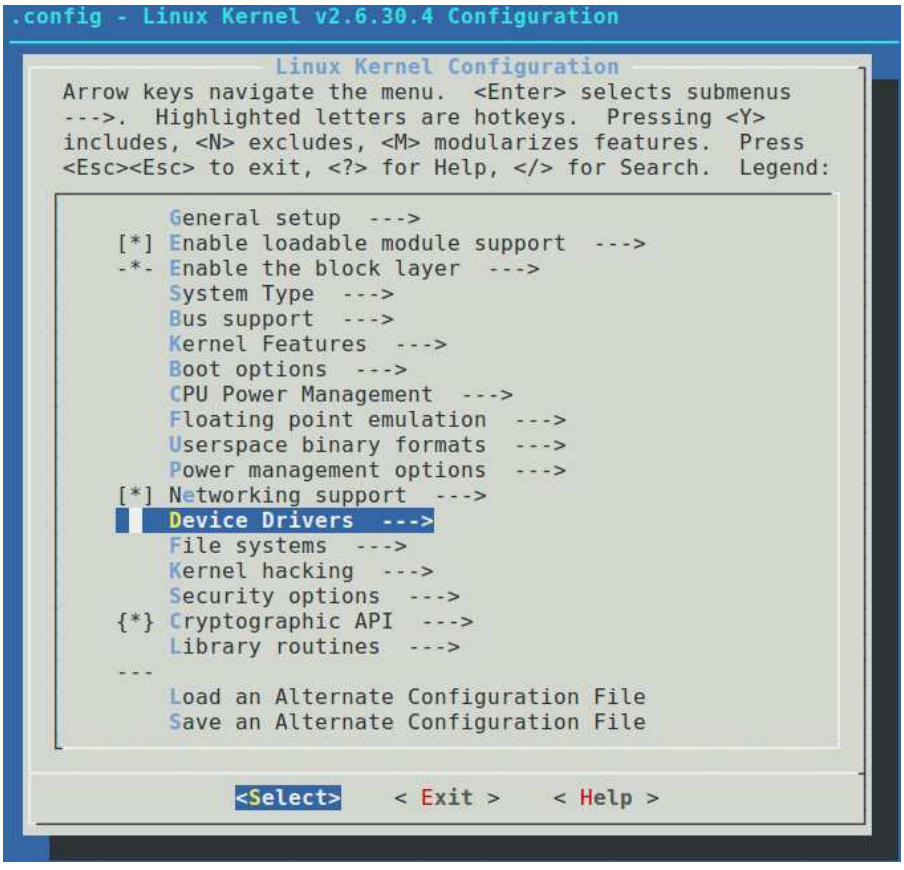
2. talk to the microphone, and now, you should be able to hear yourself from the speaker

Webcam Setup

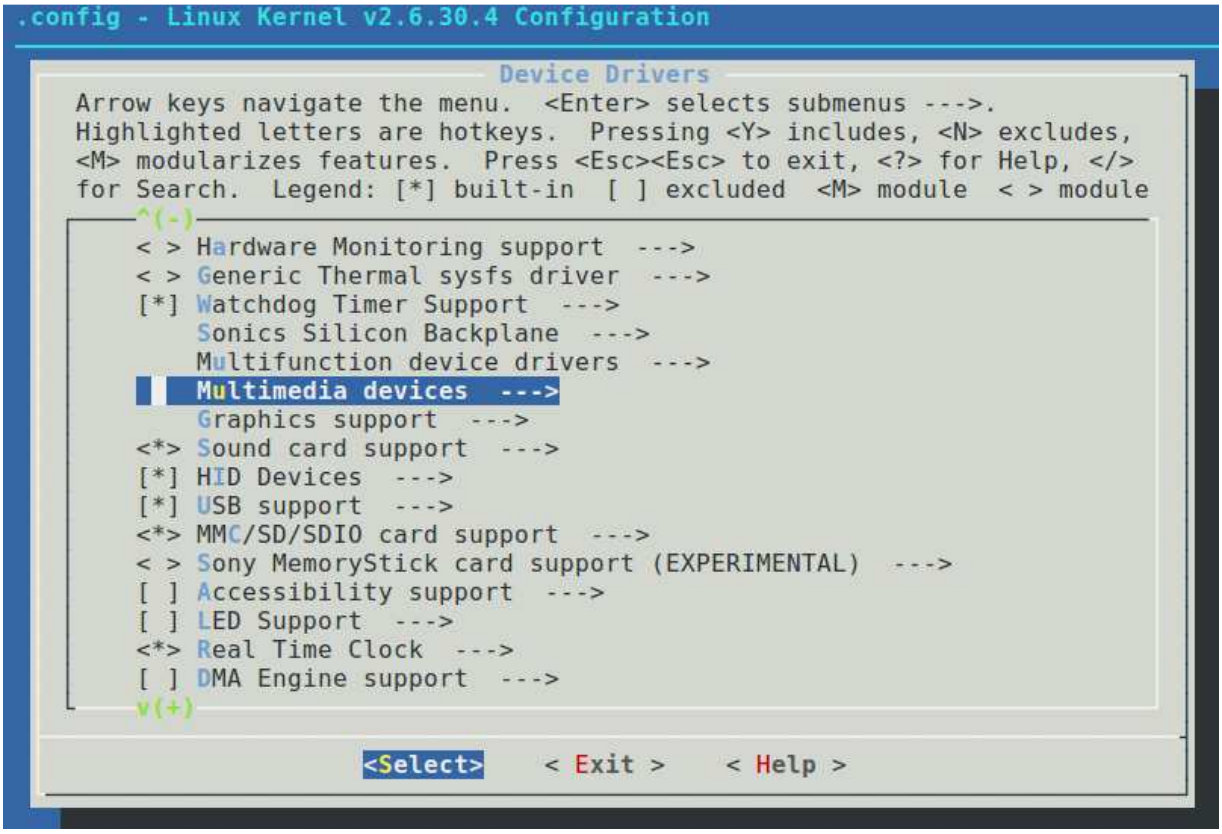
1. Install Driver

1.1 Configure the kernel's makefile using its configuration menu:

1. use menuconfig to enable the driver
   - Launch the menuconfig tools
     > make menuconfig
   - Go to
     -> “Device Driver”



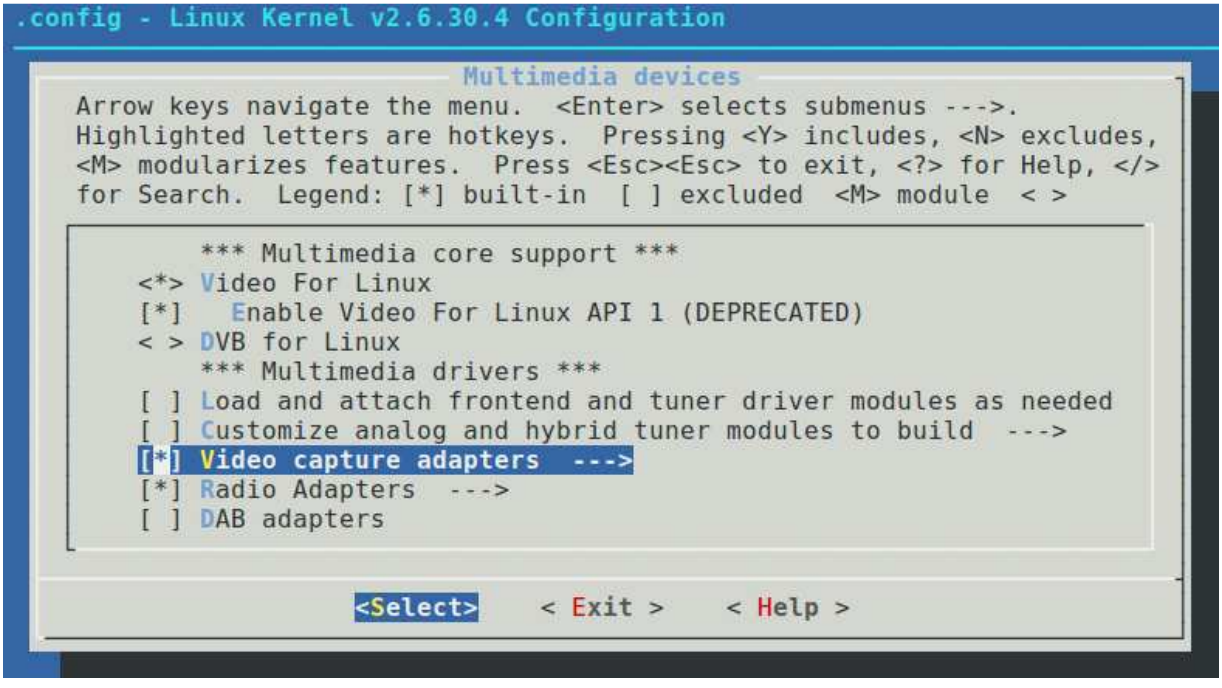
->"Multimedia Devices"



Enable "video For Linux" and "Enable Video For Linux API 1"

Go to

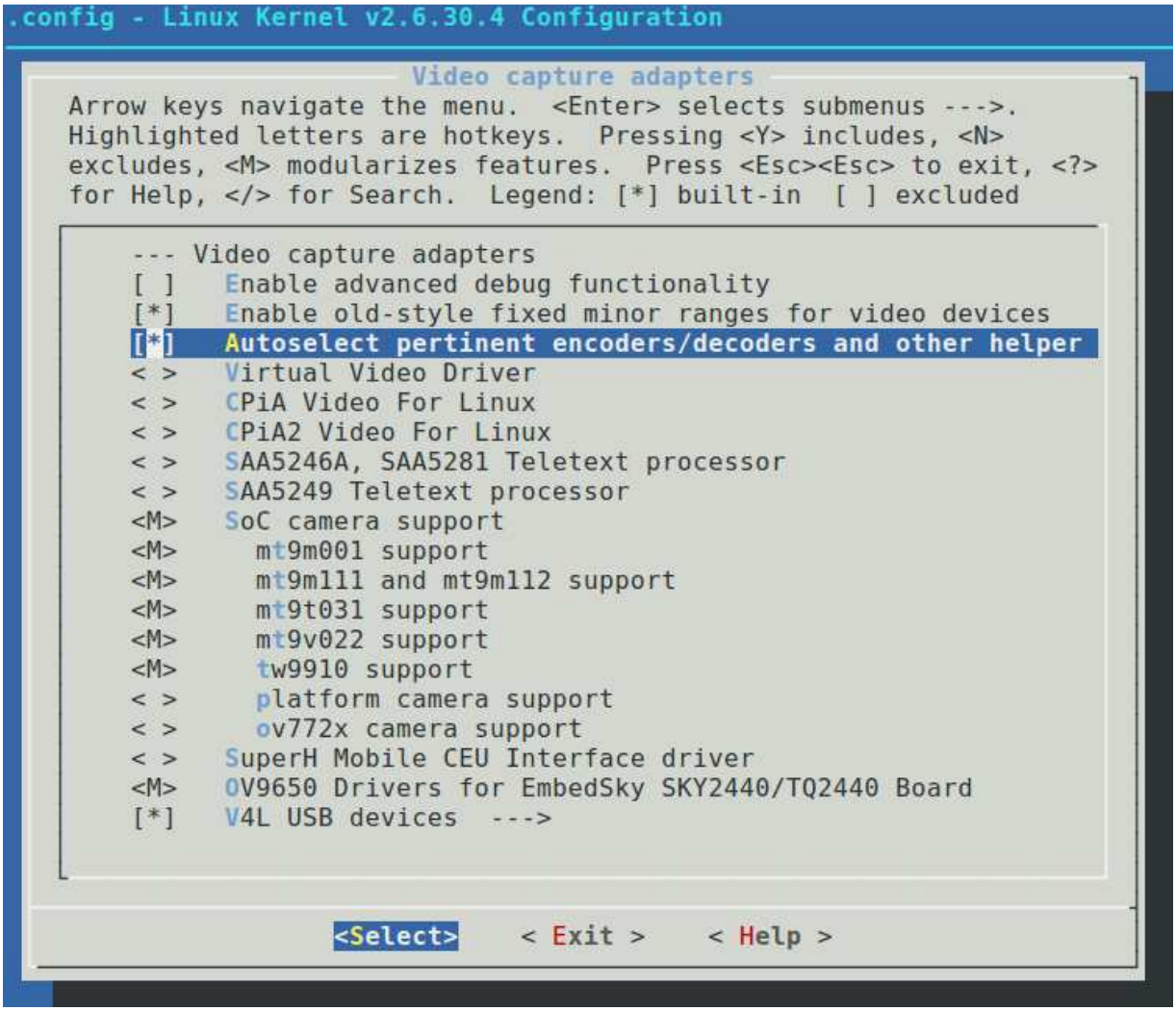
-> "Video capture adapters"



Enable "AutoSelect Pertinent encoders/decoders and other helper chips"

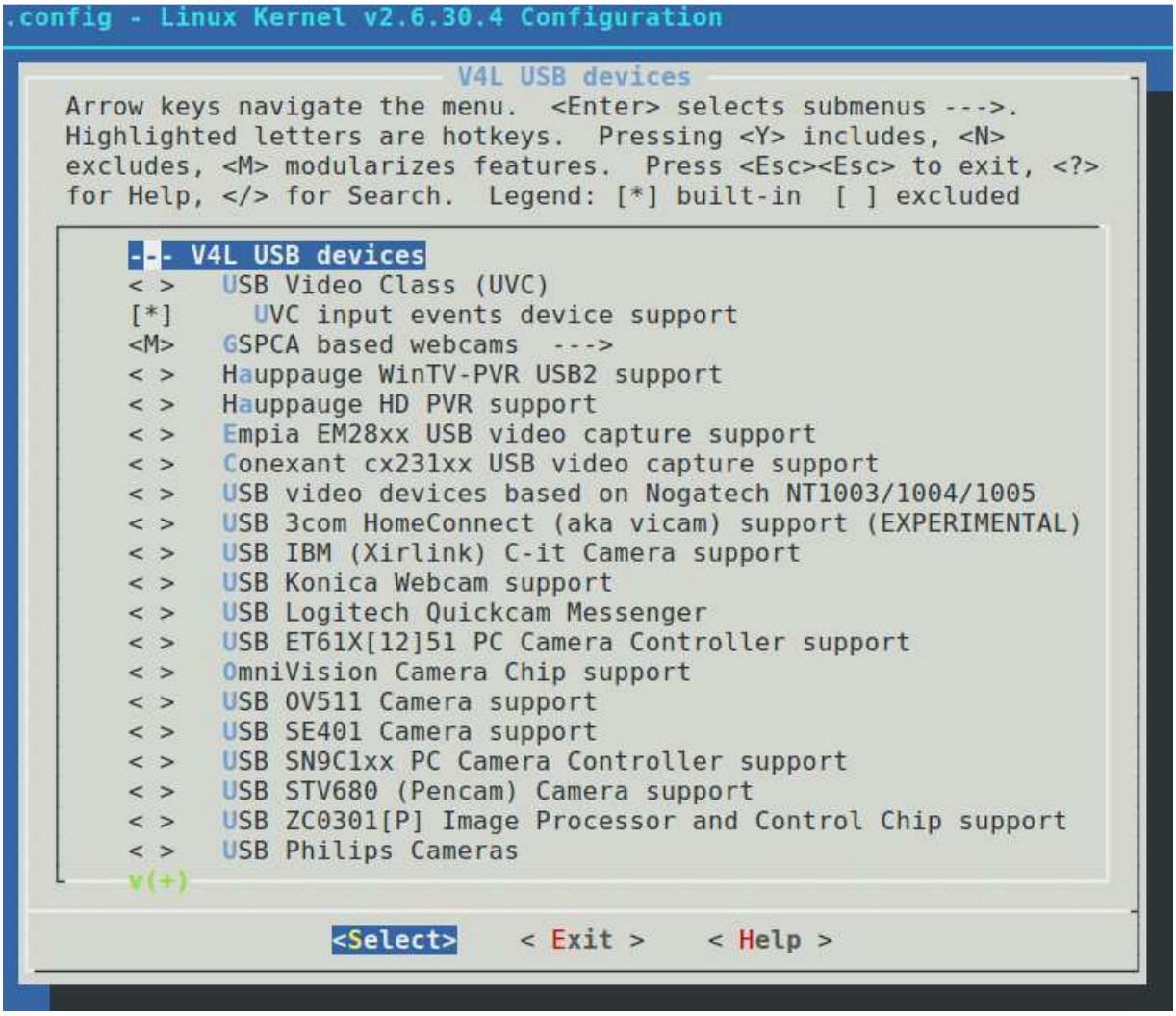
Go to

-> "V4L USB devices"



Enable "UVC input events device support"

note: match the driver for your webcam and the list, enable the one matches



- Press the right arrow key to exit button and exit menuconfig. Make sure you have the file.

2. build zImage

> make zImage

3. copy zImage to the share directory

> cp $HOME/cmpt433/private/Linux-2.6.30.4/arch/arm/boot/zImage $HOME/cmpt433/public/

4. on the Target, enter uboot, and download the zImage

uboot> tftpboot 0x30008000 ${TFTP_ROOT}/zImage

uboot> nand erase kernel; nand write.jffs2 0x30008000 kernel ${filesize}

2. Testing the Webcam

2.1 Find the webcam driver in the target

0. plugin Webcam to the USB port

note: make sure plug in the bottom of the USB port, the top USB is typeA and Bottom of the USB is type hostUSB, the Webcam only works in the hostUSB

1. on the Target make sure video1 exist

> ls /dev/video1

note: if video1 does not exist, the webcam driver you installed is not correct, repeat step 1 to find the correct webcam driver

2.2 Testing the webcam driver in the target

0. find the ipaddress of the target

>ifconfig

1. on the target: Launch uvc stream to test the camera capture

> uvc_stream -d /dev/video1

note: now the LED on the webcam is should turn on, indicates the webcam is recording

2. on the host: launch firefox go to:

<IPADDRESS>:8080

note: replace <IPADDRESS> with your target's IP address

- and now you should able to stream video though the web from the webcam that plug in to the target