ochin_CM4 Hardware test number 8

CSI cameras test

Devices used for tests

1. ochin CM4 carrier board
2. Raspberry Pi CM4 module with eMMC
3. Power Supply 0-30Vdc
4. CSI camera

Test description

the purpose of this test is to verify the proper functioning of the two CSI interfaces, available on the ochin board. To test the CSI cameras we will use a software called mjpg-streamer, able to display the stream of the cameras on a web page.

Preliminary configuration

The ochin_CM4 board allow to connect 2 CSI camera at the same time.

Since every camera needs a I2C interface, one I2C interface is shared between the Camera0 (the one on the side of the board)

and one of the GHS connectors (for external i2c devices).

To be able to use the Camera0 is needed to short the two smd jumper (SCL1 and SDA1) close to the Camera0 connector.

Please look at the ochin_cm4 manual at page 6.

To enable the CSI Cameras interfaces is also needed to load the proper device tree at boot. The dt-blob.bi, present in the “files” folder of this github repository, enables both cameras. To load it at boot it must be copied inside of the "/boot" folder of the CM4.

After placed the device tree within the "/boot" folder shut down the CM4 and mount the cameras to the board.

Once rebooted, if the cameras have been found, you should be able to find them as "/dev/video0" and "/dev/video1".

issuing:

```
ls /dev/video*
```

you should receive:

```
/dev/video0  /dev/video10  /dev/video12  /dev/video14  /dev/video16
/dev/video1  /dev/video11  /dev/video13  /dev/video15  /dev/video18
```

and issuing:

```
vcgencmd get_camera
```

you should receive (with 2 camera connected):

```
supported=2 detected=2
```

Installation of mjpg-streamer:

```
sudo apt-get update
sudo apt-get upgrade
sudo apt-get install cmake libjpeg8-dev imagemagick git
```

we clone the jacksonlian branch because is compatible with raspicam

git clone https://github.com/jacksonliam/mjpg-streamer

cd mjpg-streamer/mjpg-streamer-experimental

open the file "utils.c" and comment out the following lines:

//#include <linux/stat.h>

//#include <sys/stat.h>

compile teh software issuing:

make

after compiled you're ready to stream the camera to a webpage.

find the cm4 ip address (for later use):

ifconfig

Test execution

Start streaming issuing:

./mjpg_streamer -i "./input_uvc.so -d /dev/video0 -f 30 -r 1280x720" -o "./output_http.so -w ./www"

modify /dev/video0 to /dev/video1 to change the camera

To watch the camera stream, open a browser on a pc (in the same subnet of the CM4):

http://CM4_ipaddress:8080

and select "stream" on the left menu

Test result

Test passed for both cameras