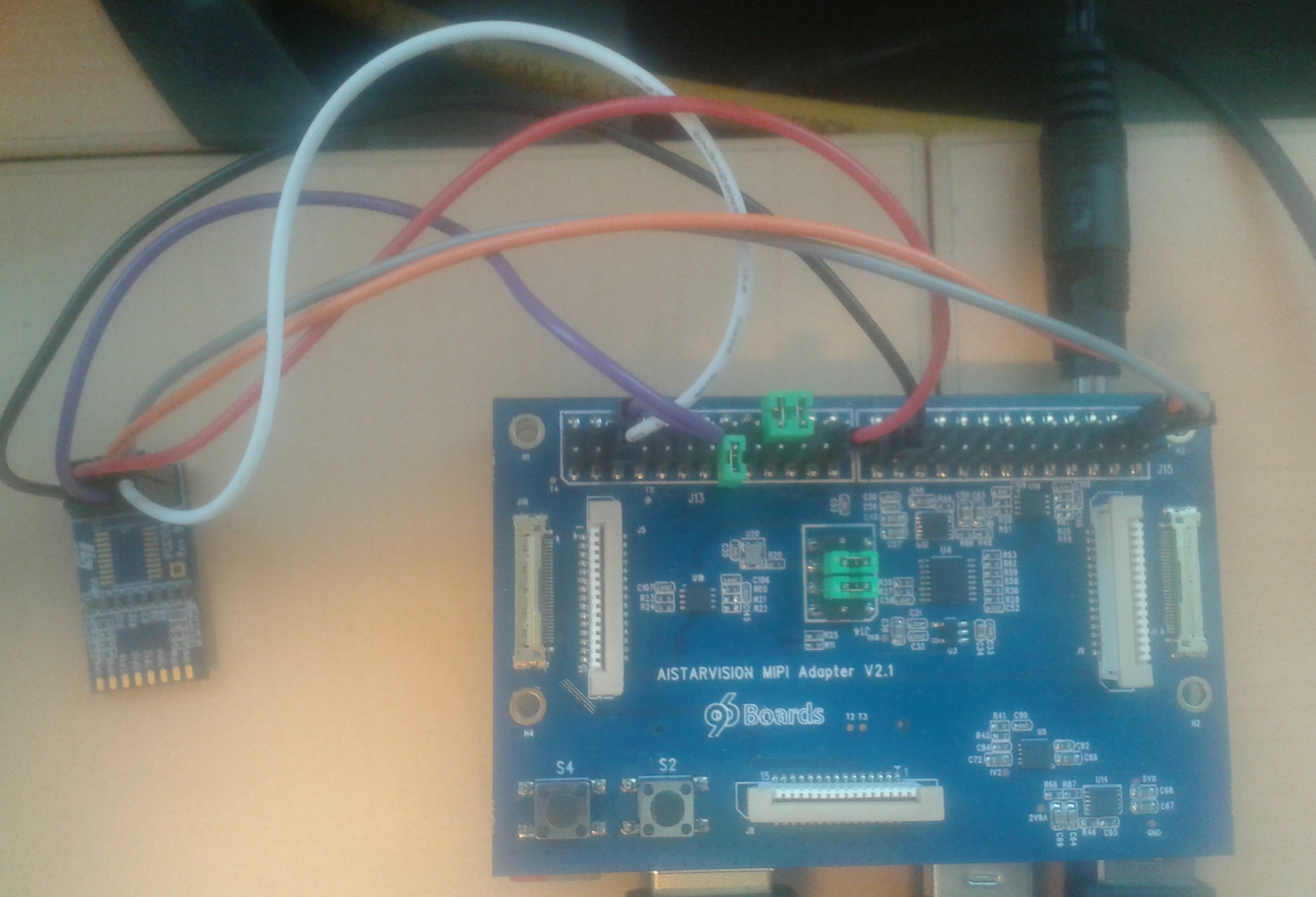
# Integration of VL53L1 breakout board on 96board dragon board 410C

# Hardware adaptation

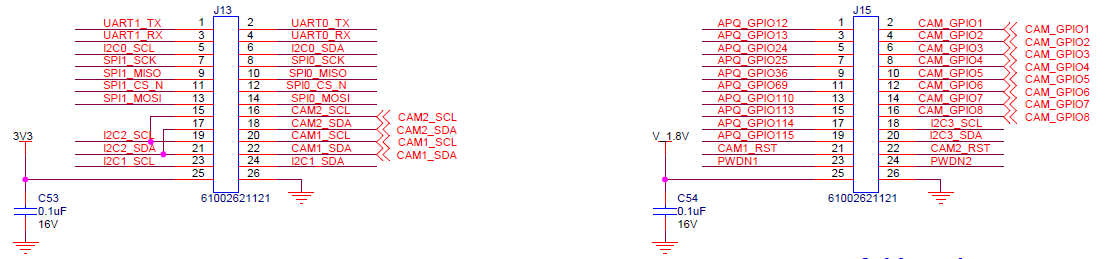
We use an AISTAR MIPI Adapter between Ewok+ VL53L1 satellite and the board 410C

<https://github.com/Kevin-WSCU/96Boards-Camera/tree/master/AISTARVISION%20MIPI%20Adapter%20V2.1>

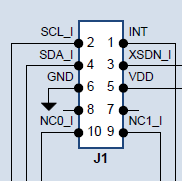
The VL53L1(X) satellite connected to the adapter board on top of a dragon board 410c



VL53L1 exposes I2C, Xshutdown and Interrupt pins which must be connected to respective I2C and GPIOs on board 410C through the AISTAR MIPI Adapter.

Adapter J13 & J15 connectors

VL53L1 Satellite



* Connect VL53L1 pins 2-4 to I2C0 located on pins 5-6 connector J13 on the adapter
* Connect Int (VL53L1J1 pin 1) to Gpio 12 pin 1 connector J15 on the adapter
* Connect Xsdn (VL53L1 J1 pin 3) to Gpio 13 pin 3 connector J15 on the adapter
* 3V3 applied on VL53L1 J1 pin 5 is taken from pin 25 connector J13 on the adapter
* GND VL53L1 J1 pin 6 is fitted on pin 26 connector J15 on the adapter

# Software requirements

Linux driver version hereunder has been used on Linaro based linux version 4.14.15-st

Source code on SVN : <http://codex.cro.st.com/svnroot/ewokp25/LinuxDriver/tags/release_14.0.6_bare_6.6.4/>

In order to cope with I²C chunks size of the board96 the code needs for a patch **stmvl53l1\_i2c.c.patch** located in the doc subdirectory

## Instruction for build kernel + daemon and run basic tests through phio user application

#### Driver build

export KDIR=/home/linaro/linux-headers

export DRIVER\_DIR=<location where you put the package of the linux driver>

export DRIVER\_DIR=${DRIVER\_DIR}/driver/vl53L1/

cd $DRIVER\_DIR

make clean

make

or make VL53L3=1 for VL53L3 devices

#### Driver installation

sudo insmod stmvl53l1.ko force\_device=1 adapter\_nb=0 xsdn\_gpio\_nb=13 intr\_gpio\_nb=12

sudo chmod 777 /dev/stmvl53l1\_ranging

#### Daemon build & launch

cd $DRIVER\_DIR/../../android/hardware/vl53l1\_daemon/

sudo make CC=gcc clean all test

./vl53l1\_daemon\_main &

#### User space test application build

cd $DRIVER\_DIR/../../android/hardware/vl53l1\_test/

make CC=gcc clean all

#### Launching user space test application

Existing options can be displayed thanks to --help option

./phio --help

Launch 10 histogram based ranging measurements

./phio -O -m=1 -s -Z=10 -S

## Instruction for build full kernel and run basic tests through phio user application

#### Driver build

export KDIR=/home/linaro/linux-headers

export DRIVER\_DIR=<location where you put the package of the linux driver>

export DRIVER\_DIR=${DRIVER\_DIR}/driver/vl53L1/

cd $DRIVER\_DIR

make clean

make VL53L1\_FULL\_KERNEL=1

or make VL53L3=1 VL53L1\_FULL\_KERNEL=1 for VL53L3 devices

#### Driver installation

sudo insmod stmvl53l1.ko force\_device=1 adapter\_nb=0 xsdn\_gpio\_nb=13 intr\_gpio\_nb=12

sudo chmod 777 /dev/stmvl53l1\_ranging

#### User space test application build

cd $DRIVER\_DIR/../../android/hardware/vl53l1\_test/

make CC=gcc clean all

#### Launching user space test application

Existing options can be displayed thanks to --help option

./phio --help

Launch 10 histogram based ranging measurements

./phio -O -m=1 -s -Z=10 -S