

# IMX477\_Z1\_LEGACY

IMX477 SENSOR BOARD DESIGNED FOR MOTORIZED  
ZOOM LENSES

DATASHEET

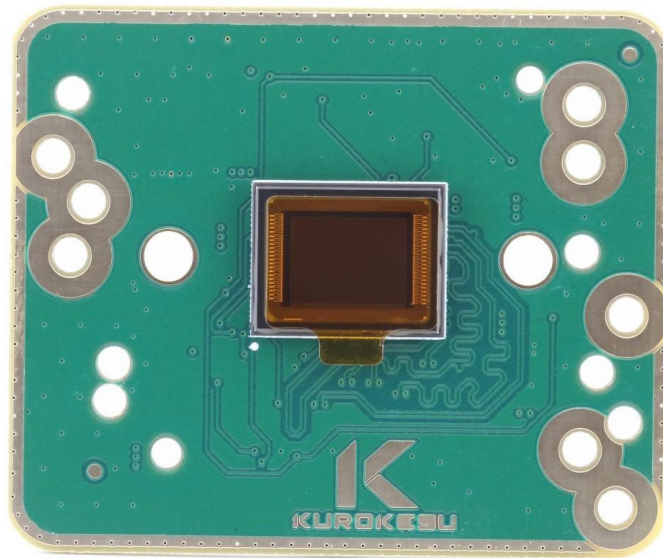


**KUROKESU**

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## Overview

Kurokesu IMX477 image sensor (1/2.3", 12.3MP) board with MIPI CSI-2 interface is designed to match motorized zoom lenses.



## Features

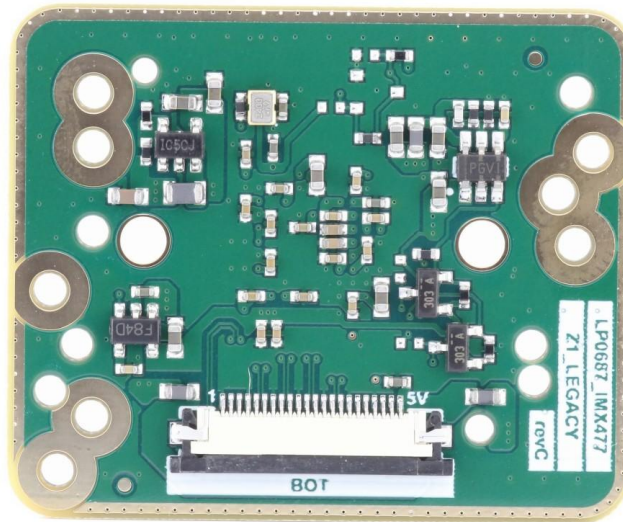
- Sensor: IMX477
- Optical Format: 1/2.3" (diagonal 7.857mm)
- Resolution: 4056(H) x 3040(V) 12.3MP
- Pixel Size: 1.55μm x 1.55μm
- Lane MIPI CSI-2
- Lens Mount: Board mount
- Multiple mounting options (designed to match [motorized zoom lenses](#))
- 4 lanes routed to FFC connector

## Specifications

Pixels	4056 H x 3040 V
Sensor size	7.564 x 5.476 mm
Shutter	Electronic Rolling Shutter
Sensor pixel size	1.5µm x 1.5µm
Scan	Progressive
Rated power	2W max
Sensor	Sony IMX477-AACK
Weight	4g
Lens mount	Board mount
Operational temperature	TBD
Weight	30.5×37×4.17mm

## FFC connector pin-out

IMX477 camera board has 22pin 0.5mm spaced pitch FFC connector 687122183722 from [Würth Elektronik](#). Cable orientation is bottom (see notes on the PCB).



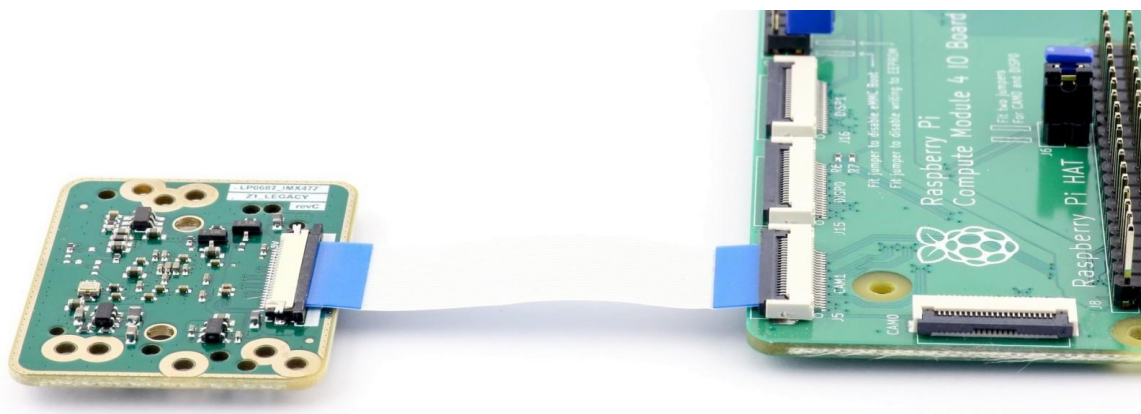
Pinout table

Pin nr	Signal	Note
1	GND	
2	MIPI_D1_N	
3	MIPI_D1_P	
4	GND	
5	MIPI_D2_N	
6	MIPI_D2_P	
7	GND	
8	MIPI_CLK_N	
9	MIPI_CLK_P	
10	GND	
11	MIPI_D3_N	
12	MIPI_D3_P	
13	GND	
14	MIPI_D4_N	

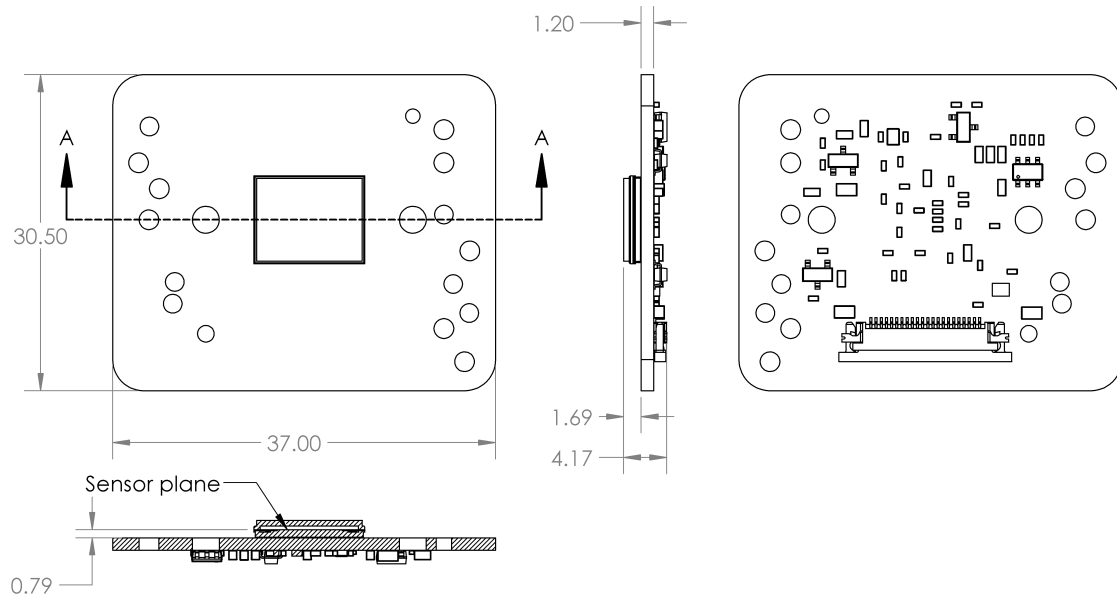
15	MIPI_D4_P	
16	GND	
17	SEN_PWR_2.8V	Sensor analog power supply
18	LED	Not used
19	GND	
20	SCL	
21	SDA	
22	3.3V	Logic power supply

## Connectivity with Raspberry PI compute module

Use 22pin 0.5mm pitch FFC cable like 687622050002 from [Würth Elektronik](#)



## Dimensions



**i** 3D model is maintained in our [official GitHub repository](#)

# Using with Raspberry Pi

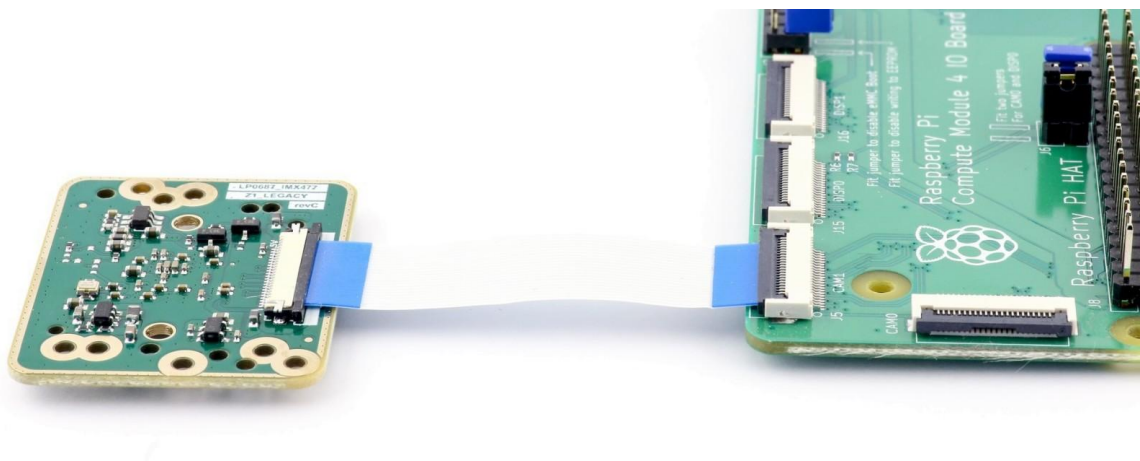
## Raspberry Pi CM4 compute module

Quick guide how to use camera module with [Raspberry Pi compute module](#) and [IO board](#). Raspberry Pi software is in active development thus changes fairly quickly. We will touch preparation procedure very briefly.

⚠ Only compute modules support cameras without crypto chip.

## Prepare board

- Fit jumpers J2 - disable EMMC boot
- Fit jumpers J6 - enable CAM0, DISP0
- Connect camera co CAM1 port



## Install OS

- Install rpiboot
- Start rpiboot
- Use rpi-imager to flash OS

## Boot

- Remove J2 jumper - disable EMMC boot
- Scan for IP on local network
- Connect monitor and keyboard, finish setup
- Expand system



## Prepare camera

- Setup single camera mode

```
sudo wget https://datasheets.raspberrypi.org/cmio/dt-blob-cam1.bin -O /boot/dt-blob.bin
sudo reboot
```

- Check if camera is detected after reboot

```
vcgencmd get_camera
```

## Recipe #1 - show video in console as ASCII text

```
raspivid -t 0 -o - | gst-launch-1.0 fdsrc ! h264parse ! rtph264pay config-interval=1 pt=96 ! decodebin ! videoconvert ! aasink
```

## Recipe #2 - stream video over network

- Start streaming on Raspberry Pi

```
raspivid -o - -t 9999999 | cvlc -vvv stream:///dev/stdin --sout '#rtsp{sdp=rtsp://:8554/}' :demux=h264
```

- Start client on Windows computer (change Raspberry Pi IP address to match your setup)

```
set PATH=C:\gstreamer\1.0_1.18.3\bin\;C:\gstreamer\1.0_1.18.3\lib\gstreamer-1.0\;C:\gstreamer\1.0_1.18.4\libexec\gstreamer-1.0\
gst-launch-1.0 rtspsrc location=rtsp://192.168.0.86:8554/ latency=10 !
decodebin ! timeoverlay ! videoscale ! videoscale ! video/x-raw,width=1280,height=720 ! autovideosink
```

## Demo video with 40x motorized zoom lens

For more details check [blog post](#)



# PCB revisions

## RevA

- Proof of concept

## RevB

- Route 4 MIPI lines
- Add lens holes

## RevC

- Cleanup design
- Replace LDO with ones that can be purchased