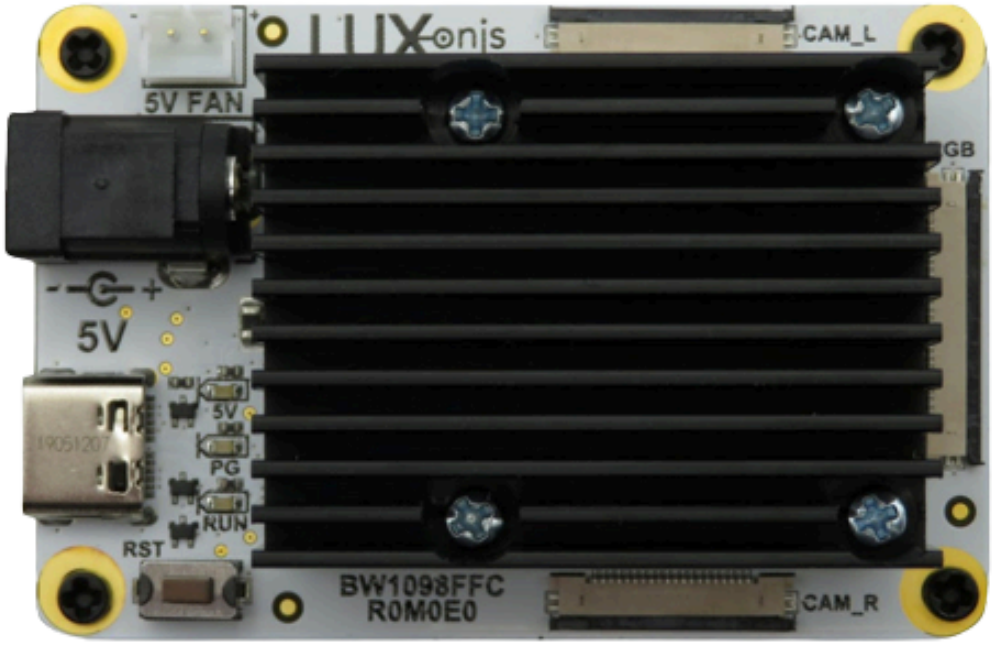
OAK-FFC-3P-OG

Buy it on Luxonis shop

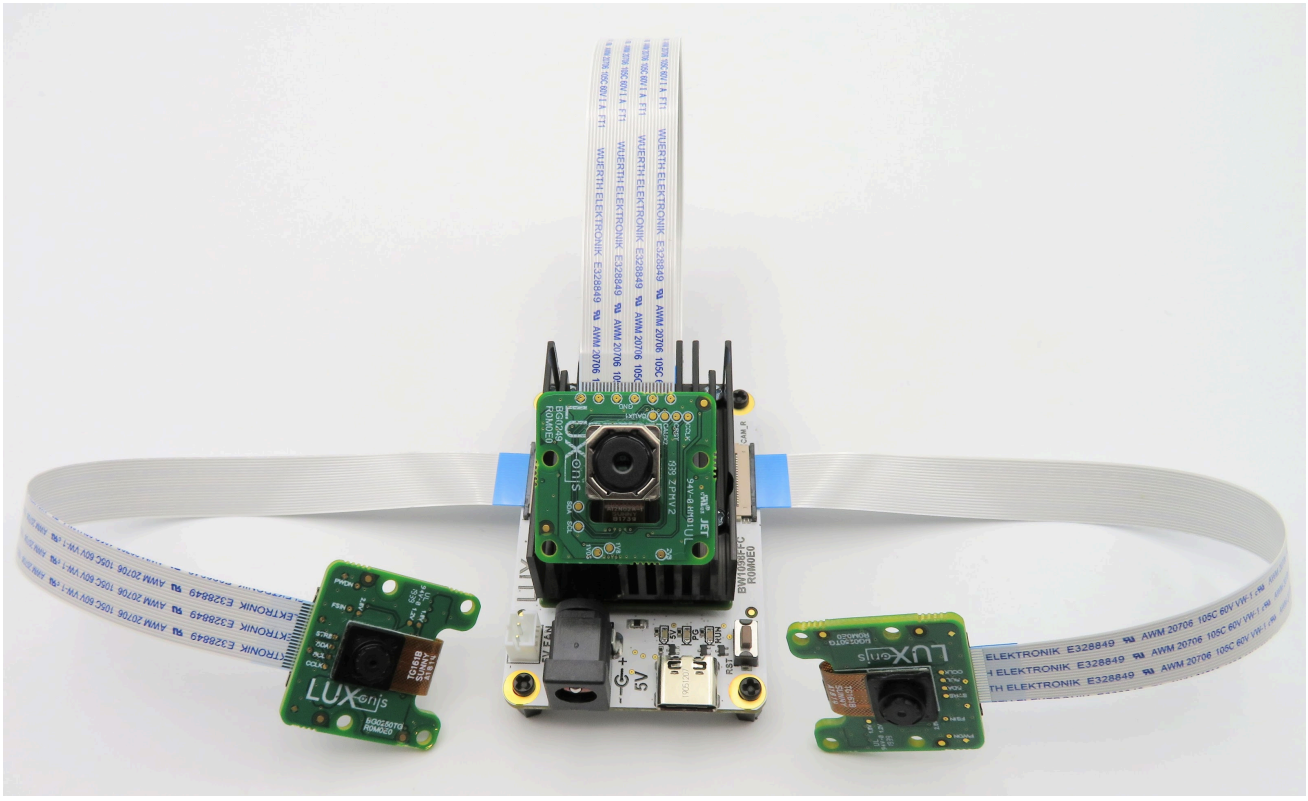


Overview

> **Warning**
>
> We recommend using the OAK-FFC-3P, the latest model, unless you are sure you need this one.

The OAK-FFC-3P-OG (BW1098FFC) baseboard has three FFC interfaces which allows for two OAK-FFC-OV9282 camera modules (stereo pair) and one OAK-FFC-IMX378 RGB camera module. This board can also be used with adapters for the Raspberry Pi HQ Camera, using the Raspberry Pi Adapter Board.

Baseboards and cameras (BW1098FFC + OAK-FFC-OV9282 + OAK-FFC-IMX378) together:

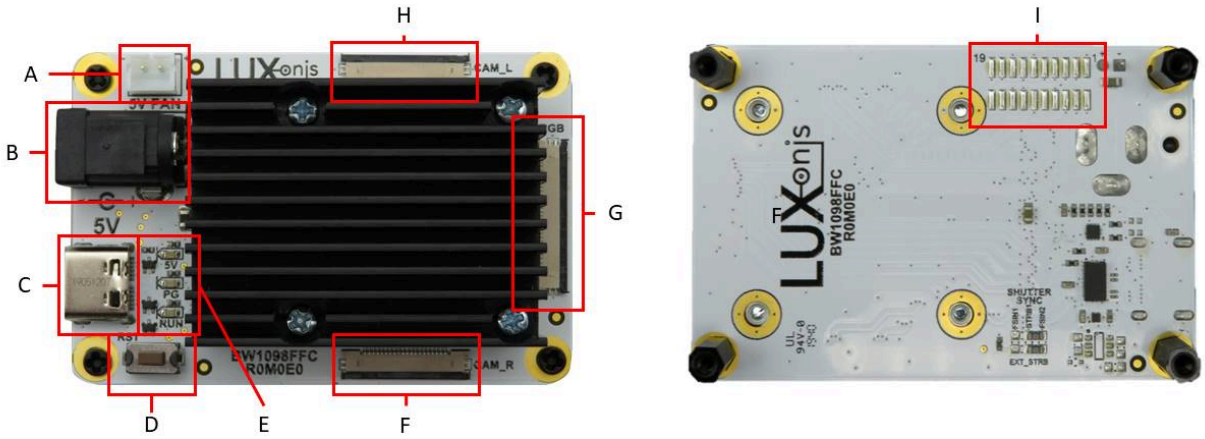


RVC2 inside

This OAK device is built on top of the RVC2. Main features:

- **4 TOPS** of processing power (1.4 TOPS for AI - RVC2 NN Performance)
- **Run any AI model**, even custom-architectured/built ones - models need to be converted.
- **Encoding**: H.264, H.265, MJPEG
- **Computer vision**: warp/dewarp, resize, crop via ImageManip node, edge detection, feature tracking. You can also run custom CV functions
- **Stereo depth** perception with filtering, post-processing, RGB-depth alignment, and high configurability
- **Object tracking**: 2D and 3D tracking with ObjectTracker node

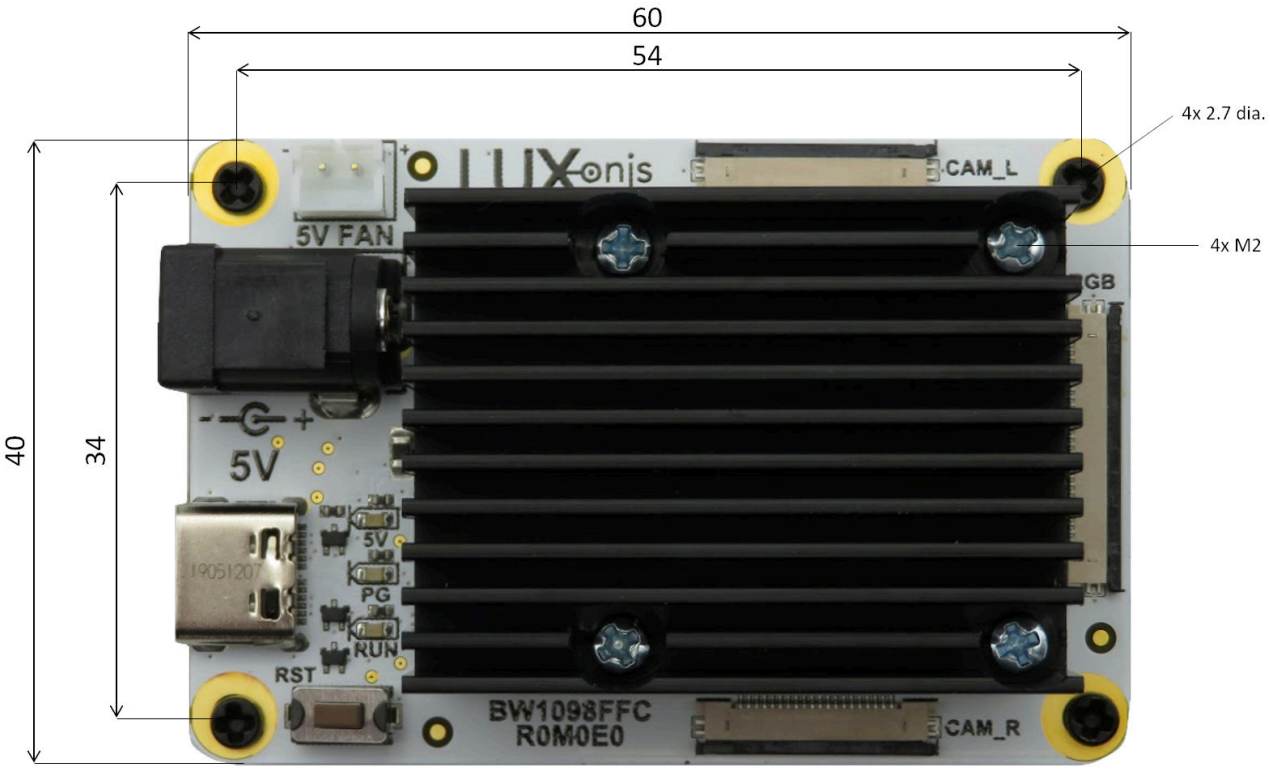
Board Layout



A.	5V Fan/Aux header	**F.**	Mono Cam R (20 pins)
B.	5.5mm x 2.5mm 5V PWR	**G.**	RGB Cam (26 pins)
C.	USB 3.1 Gen1 Type-C	**H.**	Mono Cam L (20 pins)
D.	DepthAI SoM Reset	**I.**	Aux IO access
E.	Indicator LEDs		

Dimensions and Weight

- Width: 60 mm
- Height: 40 mm
- Length: 20.5 mm
- Weight: 40g



ALL DIMENSIONS IN MM

Power consumption

Most of the power is consumed by the RVC2, so the power consumption mostly depends on the workload of the VPU:

- Base consumption + camera streaming: 2.5W - 3W
- AI subsystem consumption: Up to 1W
- Stereo depth pipeline subsystem: Up to 0.5W
- Video Encoder subsystem: Up to 0.5W

So the total power consumption can be up to ~5W if you are using all the features at 100% at the same time. To reduce the power consumption, you can reduce FPS of the whole pipeline - that way, subsystems won't be utilized at 100% and will consume less power.

Operating temperature

The ambient operating temperature of RVC2 based devices is between **-20°C and 50°C** when fully utilizing the VPU.

Similarly to the Power consumption, max operating temperature depends on VPU utilization. The higher the VPU utilization, the more heat the VPU will generate. The RVC2 VPU can continuously operate at 105 °C, after which the depthai library will automatically shut down the device (to avoid chip damage).

To find out more, see our Operative temperature range documentation.

General information

- 2 OAK-FFC-OV9282 mono camera module interfaces
- 1 OAK-FFC-IMX378 RGB camera module interface
- 5V power input via barrel jack
- USB 3.1 Gen 1 Type-C
- Pads for OAK-SoM 1.8V SPI
- Pads for OAK-SoM 3.3V SDIO
- Pads for OAK-SoM 1.8V Aux Signals (I2C, UART, GPIO)
- 5V Fan/Aux header
- Pads for OAK-SoM aux signals
- Design files produced with Altium Designer 20

Minimal and maximal perceiving distances of the camera

Minimal depth perceiving distance of the camera depends on mono camera FOV, resolution, baseline and stereo depth mode, more info is available on the Stereo Depth documentation.

Since this device has modular mono cameras, you can choose a custom stereo baseline (depending on how it is set up). When using OAK-FFC-OV9282, the formulas for min/max depth perceiving distances are:

- Min distance (800P) = `882.5 * baseline / 95`
- Min distance (400P) = `441.25 * baseline / 95`
- Min distance with extended disparity (800P) = `882.5 * baseline / 190`
- Min distance with extended disparity (400P) = `max(441.25 * baseline / 190, 19.6)`
- Max perceivable distance (using subpixel) = `baseline/2 * tan((90 - 71.9/1280) * PI/180)`

For more information about the maximum distance see the Stereo Depth documentation.

Getting started

The OAK-FFC-3P-OG accepts 5V (+/-10%) from a 5.5m x 2.5mm barrel jack, and interfaces to a host via USB 3.1 Gen1 Type-C. With cameras and the OAK-SoM, total power consumption usually stays below the 900ma specification of USB 3, but Type-C power of 1.5A or greater is recommended.

Interfacing with the OAK-SoM is also possible with OAK-FFC-3P-OG connector pads J3, J4, and J5. These pads are designed for the Amphenol/FCI 20021121-00010T1LF or equivalent. Please refer to the schematics for pinout information.

The reset button resets the OAK-SoM only.

The 5V LED indicates 5V power is present on the OAK-FFC-3P-OG. The PG LED indicates “power good” from the OAK-SoM. The “RUN” LED indicates that the OAK-SoM is not in reset.

Brochures

- Brochure

3D Models

- Board STEP files here

Files

- Altium Design Files
- Assembly Drawing
- Assembly Outputs
- Fabrication Drawing
- Fabrication Outputs
- Schematic

Got questions?

Head over to **Discussion Forum** for technical support or any other questions you might have.