OAK-D-W

Overview

The OAK-D W is a Wide Field of View (FoV) version of the OAK-D S2.

Hardware Specification

This OAK camera uses USB-C cable for communication and power. It supports both USB2 and USB3 (5Gbps / 10Gbps).

Wide FOV lenses can only be fixed-focus.

Left: normal FOV, Right: Wide FOV

Camera Specification:

Wide FOV IMX378

Camera Specs	Colour Camera	Stereo Pair
Sensor	IMX378 (PY060)	OV9282 (PY059)
Shutter	Rolling	Global
DFOV/HFOV/VFOV	120°/95°/70°	150°/128°/80°
Rectified Depth FOV	N/A	106°/97°/70°
Resolution	12MP (4056x3040)	1MP (1280x800)
Focus	FF: 60cm - ∞	FF: 18cm - ∞
Max Framerate	60 FPS	120 FPS
F-Number	2.8 ±5%	2 ±5%
Sensor Size	1/2.3"	1/4"
Effective Focal Length	2.75mm	1.69mm
Distortion	< -14.6%	< 38%
Pixel Size	1.55µm x 1.55µm	3.0µm x 3.0µm

Camera Specification:

Wide FOV OV9782

| Camera Specs	Colour Camera	Stereo Pair
Sensor	OV9782 (PY058)	OV9282 (PY059)
Shutter	Global	Global
DFOV/HFOV/VFOV	150°/128°/80°	150°/128°/80°
Rectified Depth FOV	N/A	106°/97°/70°
Resolution	1MP (1280x800)	1MP (1280x800)
Focus	FF: 18cm - ∞	FF: 18cm - ∞
Max Framerate	120 FPS (800P)	120 FPS (800P)
F-Number	2 ±5%	2 ±5%
Sensor Size	1/4"	1/4"
Effective Focal Length	1.69mm	1.69mm
Distortion	< 38%	< 38%
Pixel Size	3.0µm x 3.0µm	3.0µm x 3.0µm

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 - 4K/30FPS, 1080P/60FPS
- **Computer Vision** warp/dewarp, resize, crop ia ImageManip node, edge detection, feature tracking. You can also run custom CV functions
- **Object Tracking** 2D and 3D tracking with ObjectTracker node
- **Stereo Depth** perception with filtering, post-processing, RGB-depth alignment and high configurability

Dimensions and Weight

Weight: 91g
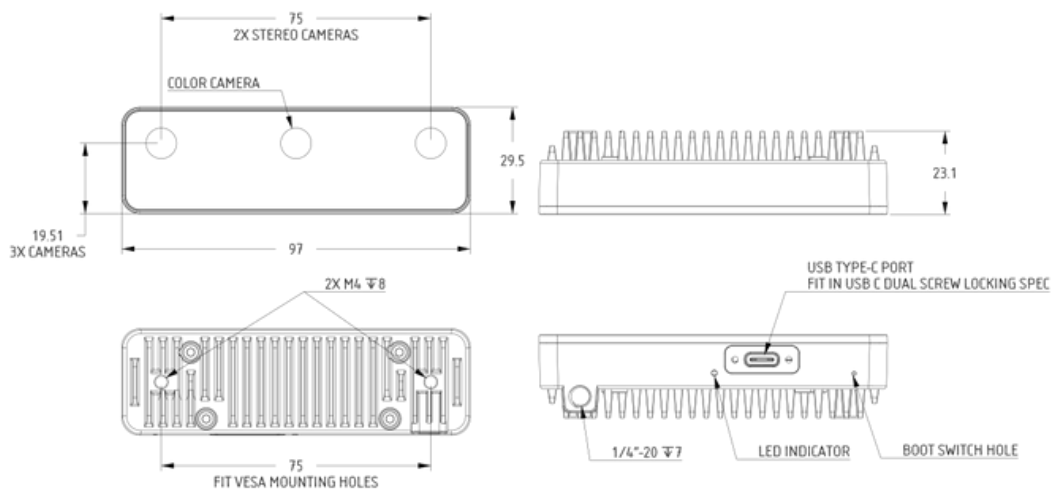
Stereo depth perception

This OAK camera has a baseline of 7.5cm - the distance between the left and the right stereo camera. Minimal and maximal depth perception (MinZ and Max) depends on camera FOV, resolution, and baseline- more information here.

- Ideal range: 40cm - 6m
- MinZ: ~20cm (400P OR 800P, extended), ~37cm (800P)
- MaxZ: ~10 meters with a variance of 10% (depth accuracy evaluation)

Extended means that StereoDepth node has Extended disparity mode enabled.

Integrated IMU

This OAK camera has an integrated BNO085, a 9-axis IMU (Inertial Measurement Unit). See IMU node for the API details on how to use it.

Note: due to supply chain issues, most of the OAK camera that were manufactured between Q2 2021 and Q2 2023 have integrated BMI270 - 6-axis IMU instead.

3D Models

- Board STEP files here
- Enclosure STEP files here