

OAK-D W — DepthAI Hardware Documentation 1.0.0 documentation

OAK-D W



Overview

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

Hardware specifications

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

Camera module specifications

[Wide FOV IMX378](#)

[Wide FOV OV9782](#)

For the wide FOV version you can select **either** 120° DFOV IMX378 (12MP) **or** 150° DFOV color OV9782 (1MP) color camera.

Camera Specs	Color camera	Stereo pair
Sensor	IMX378 (PY060)	OV9282 (PY059)
DFOV / HFOV / VFOV	120°/95°/70°	150°/128°/80°

Camera Specs	Color camera	Stereo pair
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%
Lens size	1/2.3 inch	1/4 inch
Effective Focal Length	2.75mm	1.69mm
Distortion	< -14.6%	< 38%
Pixel size	1.55µm x 1.55µm	3µm x 3µm

Wide FOV lenses can only be fixed-focus.



Left: normal FOV, Right: Wide FOV

RVC2 inside

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

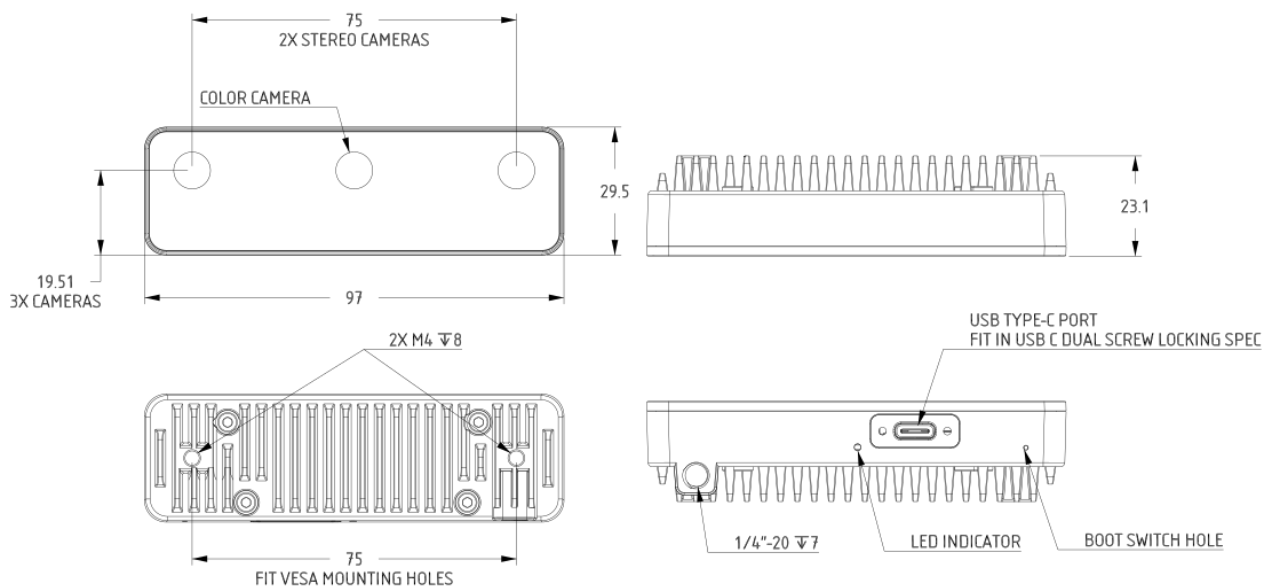
- **4 TOPS** of processing power (1.4 TOPS for AI - RVC2 NN Performance)
- **Run any AI model**, even custom-architected/built ones - models need to be converted.

- **Encoding:** H.264, H.265, MJPEG - 4K/30FPS, 1080P/60FPS
- **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



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.