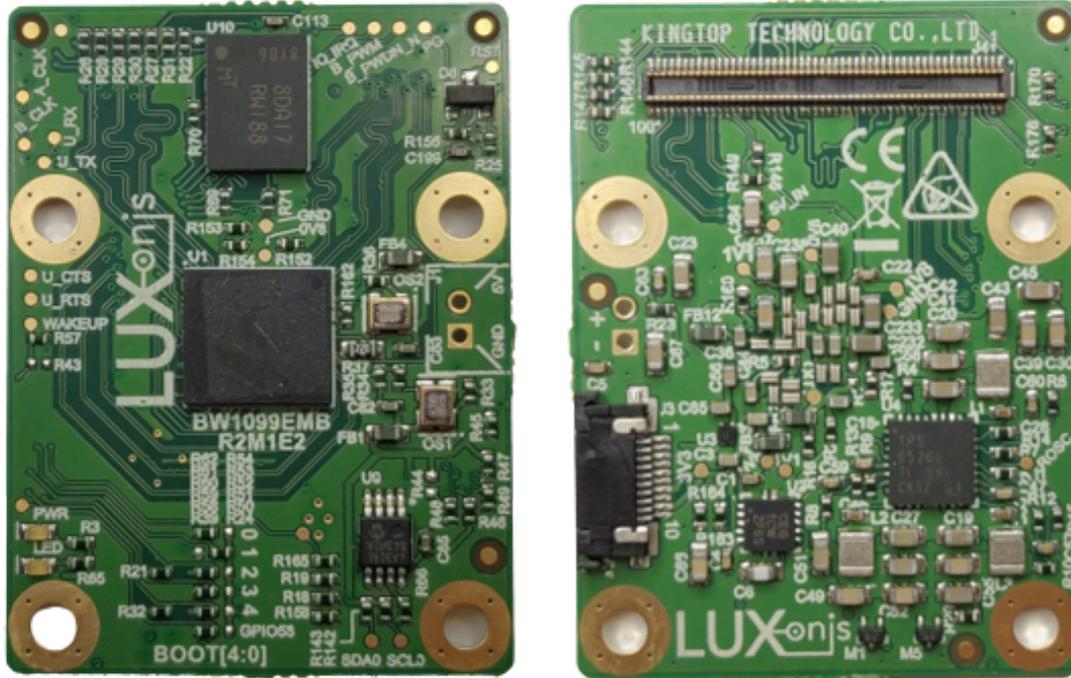


OAK-SoM-IoT

Buy it on [Luxonis shop](#)



Overview

The OAK-SoM-IoT (BW1099EMB) is a System on a Module (SoM) designed for integration into top-level system with a need for a low-power, 4 TOPS AI vision system. The OAK-SoM-IoT interfaces with the system through a single 10-Gbps-rated 100 pin board-to-board mezzanine connector which carries all I/O signals as well as 5V input. The on-board SMPS system regulates the 5V input and provides all necessary digital and analog power. An auxiliary power port is offered to interface without connection to a baseboard.

Devices that use OAK-SoM-IoT

All devices that have SoM on-board are also open-source. You could redesign them, for example to change stereo baseline. If you are interested in integrating DepthAI (via SoM) into your product, see [documentation here](#).

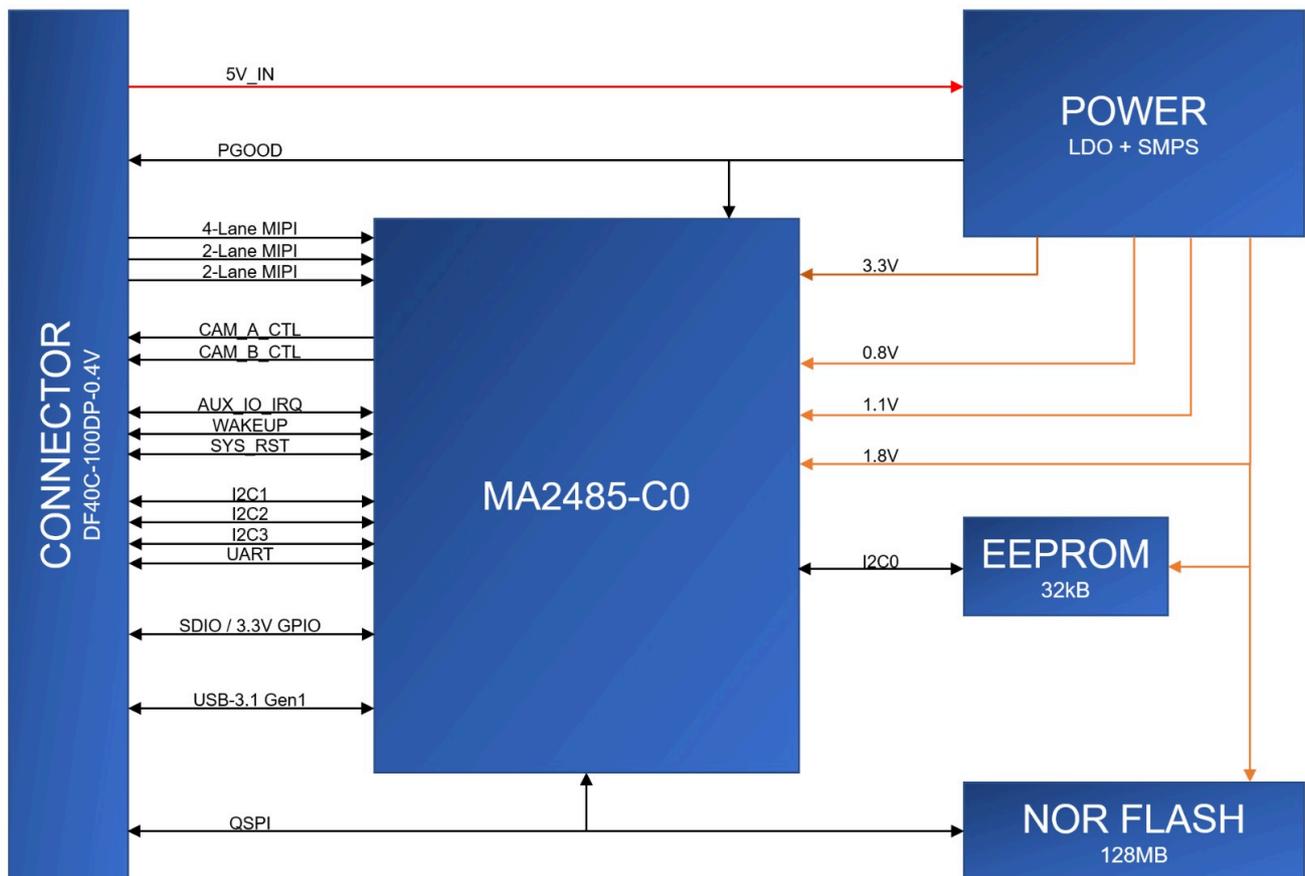
- [OAK-D-IOT-40](#)
- [OAK-D-IOT-75](#)

RVC2 inside

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

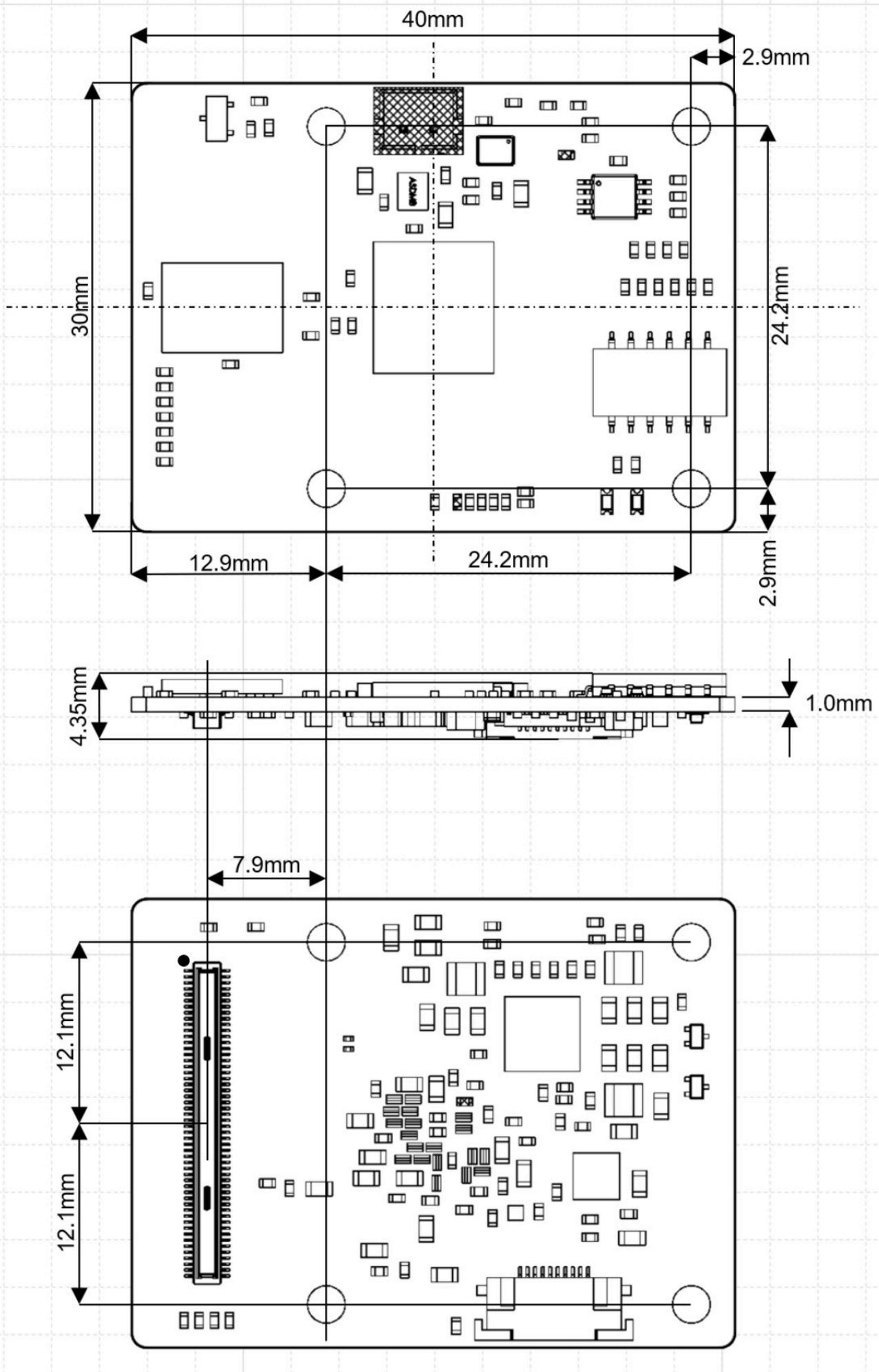
- 4 TOPS of processing power (1.4 TOPS for AI - RVC2 NN Performance)
- Run any AI model, even custom-architected/built ones - models need to be converted.
- Encoding: H.264, H.265, MJPEG
- Computer vision: warp/dewarp, resize, crop via ImageManip node, edge detection, feature tracking. You can also run 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



Dimensions and Weight

- Width: 30 mm
- Height: 40 mm
- Length: 4.35 mm (17.5 mm with heatsink)
- Weight: 4g



General information

- Interfaces with the system through a single 10-Gbps-rated 100-pin connector (DF40C-100DP-0.4V(51))
- 2 x 2-lane MIPI channels
- 1 x 4-lane MIPI channels
- USB 3.1 Gen 1
- Boot Modes supported: USB, NOR (128MB)
- Design files produced with Altium Designer 20

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.

Datasheet

- [Datasheet](#)

3D Models

- Board STEP files [here](#)

Altium Design Files

See files [here](#)

Got questions?

Head over to [Discussion Forum](#) for technical support or any other questions you might have.