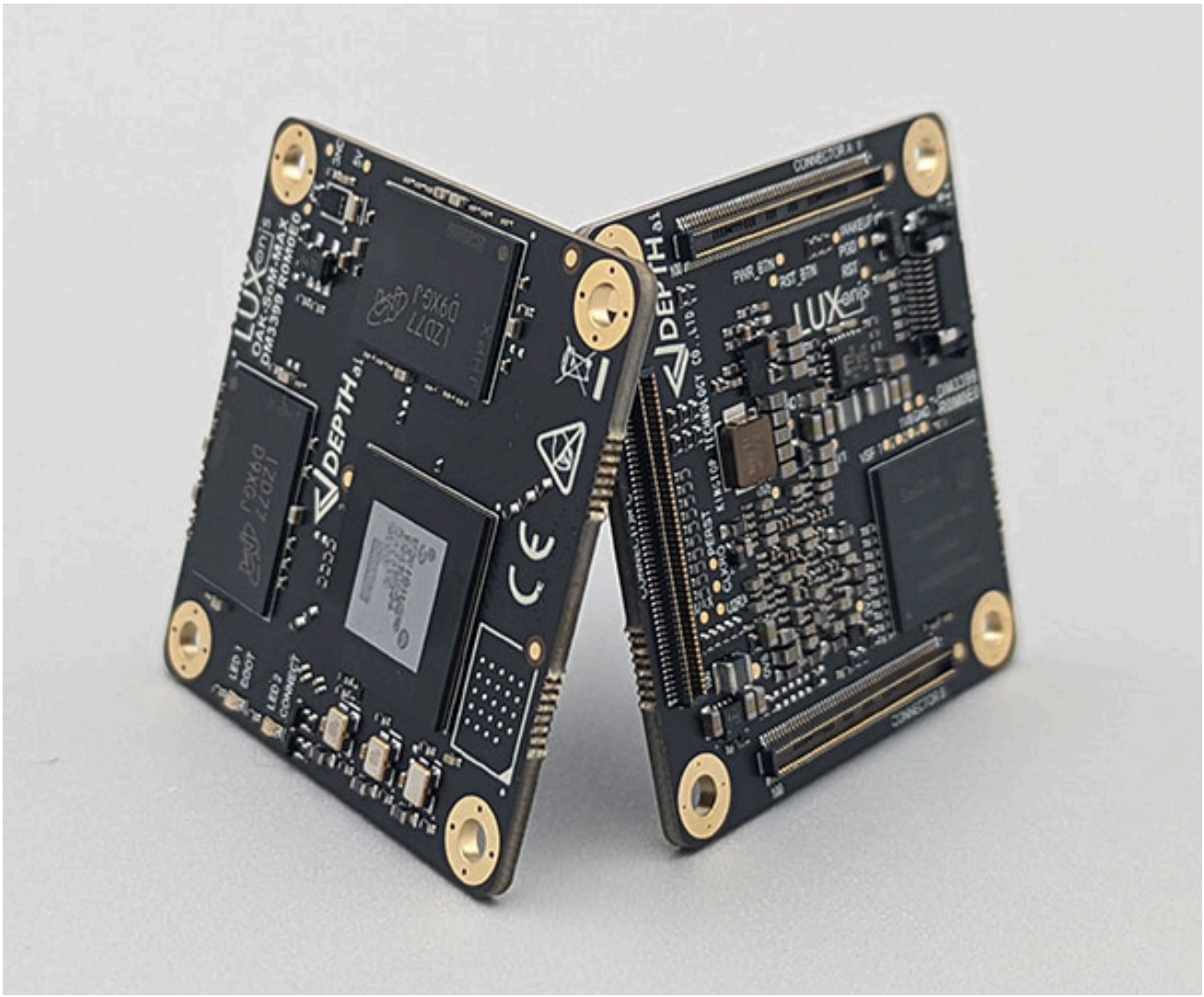
OAK-SoM MAX



Overview

OAK-SoM MAX has Robotics Vision Core 3 (RVC3), and **quadcore ARM CPU** on board. The OAK-SoM MAX is a System on Module (SoM) designed for integration into top-level system with a need for a low-power, high performance, real-time AI and depth perception.

The OAK-SoM MAX interfaces with the system through three 10-Gbps-rated 100-pin board-to-board mezzanine connector which carries all signal I/O as well as 5v input. The on-board SMPS system regulates the 5V input and provides all necessary digital and analog power.

Devices that use OAK-SoM MAX

All devices that have SoM on-board are also open-source. If you are interested in integrating DepthAI (via SoM) into your product, see documentation here.

- OAK-FFC-6P

OAK-SoM Pro S3 vs OAK-SoM MAX

These are both our initial SoMs that have on-board **RVC3** (Robotics Vision Core 3 (RVC3)). The OAK-SoM-Pro-S3 was designed first for evaluation and **backwards compatibility** with the OAK-SoM-Pro. The OAK-SoM MAX was designed later for **maximum performance and extensibility**.

OAK SoM differences

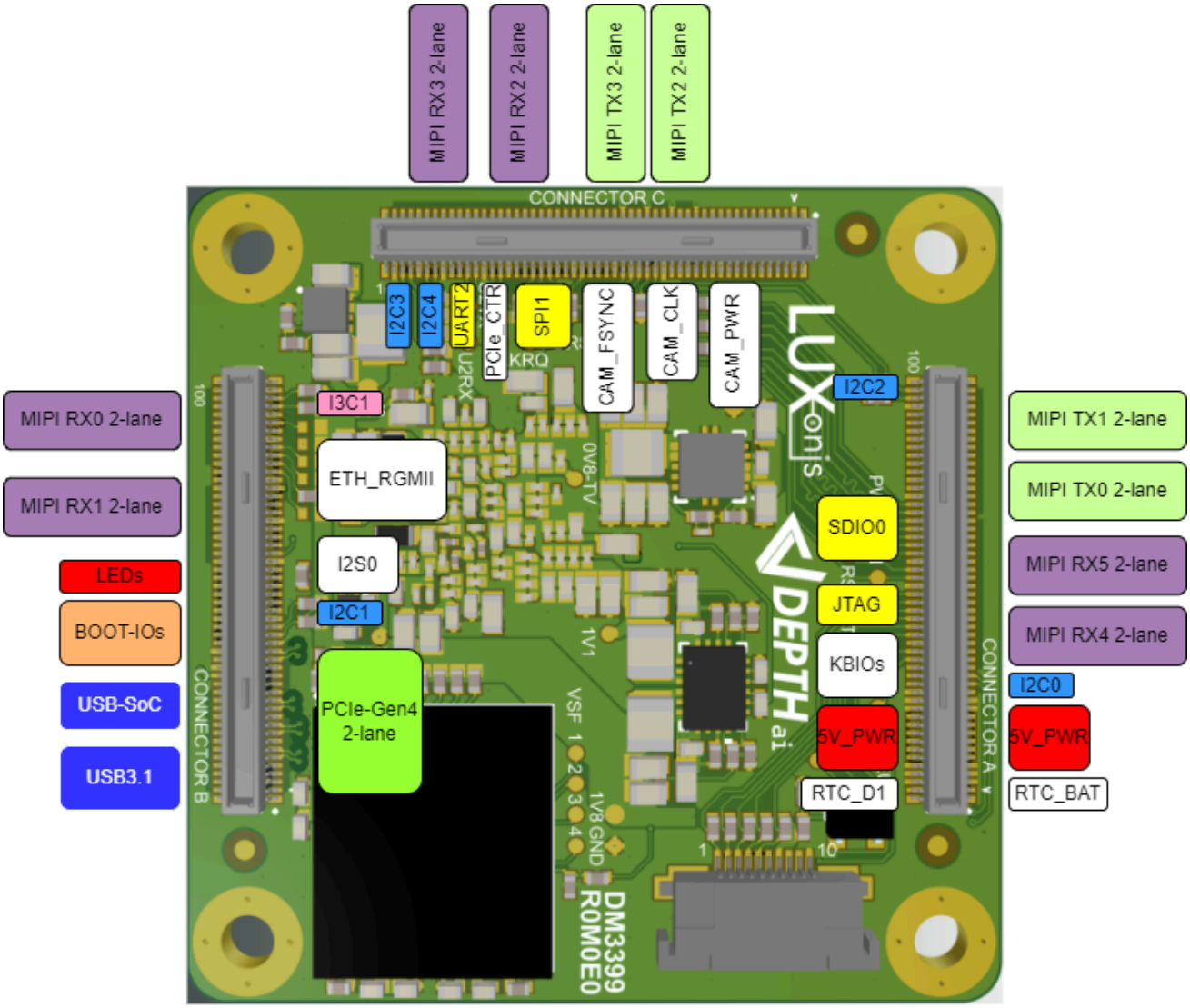
- **Compatibility with existing models**
    - **Pro-S3** is compatible with boards that have OAK-SoM-Pro integrated (list here). This allowed us for quicker evaluation of the new Robotics Vision Core 3 (RVC3).
    - **Max** is not yet compatible with any boards.
- **Connectors**
    - **Pro-S3** has 2x 100-pin mezzanine connector, with the exact same pinout as SoM-Pro.
    - **Max** has 3x 100-pin mezzanine connector, which exposes additional MIPI RX/TX lines.
- **MIPI lines**
    - **Pro-S3** has 2x 4-lane and 2x 2-lane MIPI RX lines.
    - **Max** has 6x 2-lane MIPI RX and 2x 2-lane, 1x 4-lane MIPI TX lines.
- **RAM**
    - **Pro-S3** has 1x 2GB DDR RAM due to size/shape constraints, even though Robotics Vision Core 3 (RVC3) supports dual channel RAM.
    - **Max** has 2x 2GB DDR RAM on-board, which provides maximum performance, as Robotics Vision Core 3 (RVC3) supports dual channel RAM.
- **Size**
    - **Pro-S3**: 30mm x 45mm
    - **Max**: 40mm x 40mm

OAK-SoM MAX variants

We offer 3 variants of the OAK-SoM MAX which expose a different configuration of MIPI connectivity:

- **OAK-SoM-Max** - 6x 2-lane MIPI. This is the default configuration
- **OAK-SoM-Max-1** - 4x 2-lane MIPI, 1x 4-lane MIPI. RX0+RX1 are merged into a single 4-lane MIPI
- **OAK-SoM-Max-2** - 2x 2-lane MIPI, 2x 4-lane MIPI. RX0+RX1 and RX2+RX3 are merged into 4-lane MIPI

Board Layout



Dimensions and Weight

- Width: 40 mm
- Height: 40 mm
- Length: 4 mm
- Weight: 5g

General information

- Robotics Vision Core 3 (RVC3)
- 4 GB RAM (2x16GBit)
- 32 GB eMMC
- Interfaces with the system through three 10-Gbps-rated 100-pin connectors (DF40C-100DP-0.4V(51))
- 6 x 2-lane MIPI RX lines
- 2 x 2-lane and 1x 4-lane MIPI TX lines
- USB 3.1 Gen 2
- Design files produced with Altium Designer 20

- Voltage levels: All I2C buses are 1.8V
- Pull-up resistors: 2.2k pull-up resistors located on SoM
- Min/max data rates: Robotics Vision Core 3 (RVC3) supports the following, all on I2C buses: 1) Standard Mode (100kHz), 2) Fast Mode (400kHz), 3) Fast Mode Plus (1MHz), and 4) High Speed Mode (3.4MHz)
- I2C0 bus devices: RTC circuit (address 0xD2) and EEPROM (address 0x50)

Datasheet

- Datasheet

Files

See files here

Got questions?

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