

# Adonis Camera Module

The next evolution of the Oclea™ Camera Module, now powered by the Oclea™ CV28  $\mu$ SoM, brings unmatched performance and efficiency for next-generation vision applications.

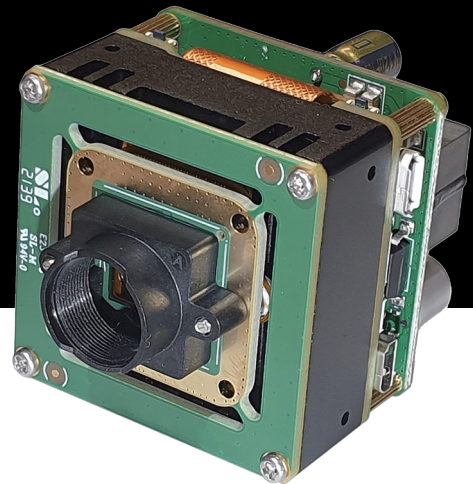
The Oclea™ Adonis Camera Module is a high-performance, low-power vision solution powered by the Ambarella™ CV28 Chip on Oclea™ CV28 SoM. Designed for the next generation of intelligent, connected devices, Adonis enables seamless edge AI integration with powerful onboard processing, advanced neural network acceleration, and ultra-efficient video encoding.

Perfect for smart cameras, machine vision, kiosks, access control, and embedded AI video applications, the Adonis Camera Module helps reduce development complexity and accelerates time-to-market.

At the front end of the system, the Oclea™ Image Sensor PCBA paired with your lens feeds the digital video input interface. A number of image sensors ranging in resolution from 1 MP to 12 MP are supported including both global and rolling shutter options.

The Oclea™ CV28  $\mu$ SoM is utilized to process the incoming video data. The donis Camera Module baseboard provides the additional peripherals that make up a full camera vision system, including I/O, communications, storage and connectors.

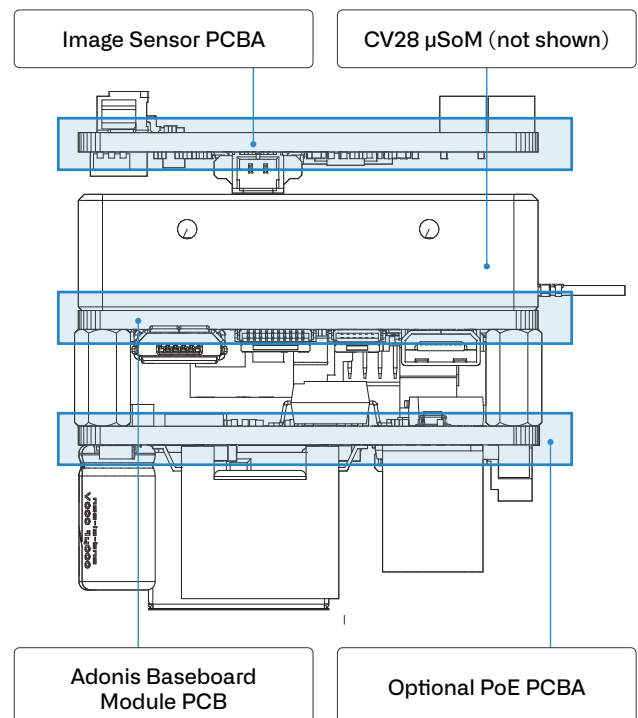
The optional PoE (Power-over-Ethernet) PCBA enables GigE Ethernet as well as a high current output driver for controlling external devices such as lighting and door locks.



## The Oclea™ Adonis Camera Module

**Size** 38 x 38 x 25-35 mm • **Weight** 47g  
(thickness depends on configuration)

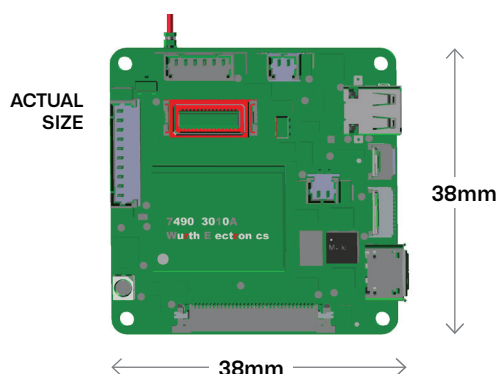
All modules connect via standardised board-to-board connectors.



## HIGHLIGHTS

- **Powerful Ambarella™ ISP and DSP** with up to 4K15 + 480p H.264/H.265 encoding performance, and integrated Quad-ARM Cortex-A53 Cores @ 1 GHz.
- **Ambarella CV28 SoC** with CVflow® 2.0 for powerful edge AI computing and advanced vision tasks
- **Up to 5MPp30 H.265 encoding + 480p H.265 + 5MP MJPEG** dual-stream support
- **Dual-core ARM Cortex-A53 @ 1GHz**, NEON SIMD, and Vector Floating Point acceleration
- **3x VIN channels** supporting simultaneous input from three sensors (MIPI, SLVS, LVDS)
- **Multi-format video output:** MIPI DSI/CSI-2, FPD, CVBS
- **Ultra-low power draw:** <1.2W typical in streaming scenarios (1080p H.264 with CVflow)
- **Small footprint:** 32mm x 32mm x 3.9mm (SoM), compact 38x38mm module configuration
- **Optional PoE PCBA** for Gigabit Ethernet and external device control
- **Pre-integrated SDK** with RTSP, WebRTC, GStreamer pipeline control, and ML examples

*\*The development SDK and engineering support are available separately. Please discuss with your Technique representative.*



Interconnecting PCBS

- Oclea™ CV28 μSoM (CPU, CVflow accelerator, RAM, flash)
- Oclea™ Baseboard for I/O, peripherals, storage
- Oclea™ Image Sensor PCBA
- Optional PoE PCBA (for GigE and high-current drivers)

Networking and Storage Options

- Ethernet Options
- 10/100 Mb/s Ethernet OR
- GigE Ethernet (with PoE 802.3af)
- Wireless and Storage Options
- Dual-band WiFi 802.11a/b/g/n with Bluetooth 5.0 Module OR
- Micro SD Card

Video Input Interface

- Video Inputs: 3x VIN (Primary: 8-lane, Secondary: 4-lane, Tertiary: 2-lane)

Video Outputs:

- MIPI CSI-2/DSI, FPD, CVBS (PAL/NTSC)

Peripheral Interfaces

- USB 2.0, UART, I2C, I2S, GPIO, SPI, ADC, CAN

Power Supply

- 3.6V to 5.5V (typ. 5V @ 1A)

Power Consumption

- ~1.2W streaming w/ AI; <0.8W idle
- Operating Temp
- -25°C to +55°C ambient (SoC up to +85°C)

Form Factor

- SoM: 32 x 32 x 3.9 mm; Module: 38 x 38 mm

Audio Interface

- Stereo 48KHz Audio Codec with
- Digital mic + speaker support (I2S, DMIC)
- Digital PIR Connector
- IR Cut Filter Driver
- IR LED Driver
- One (1) RGB LED and Two (2) Push Buttons

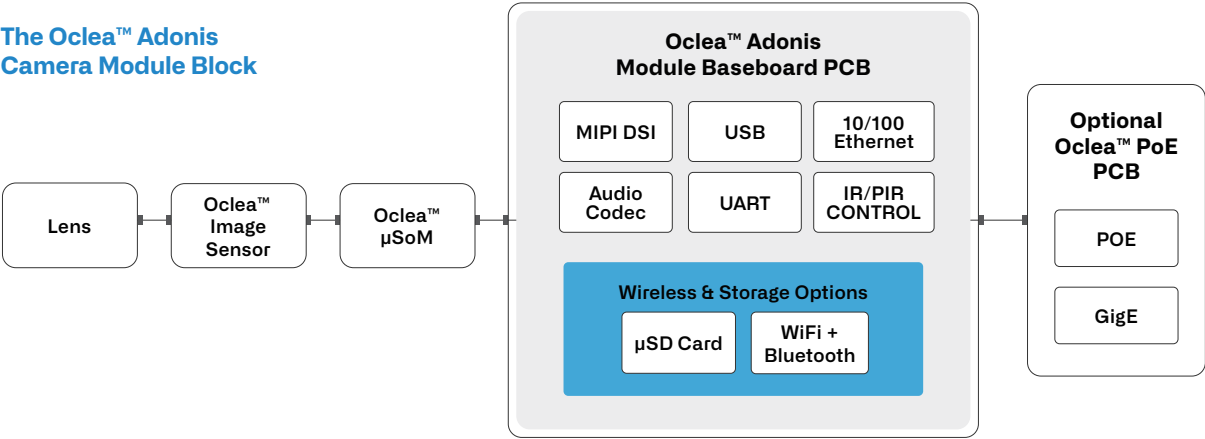
Software & SDK

- Linux Kernel 5.4 with Yocto Project build support
- GStreamer-based camera framework
- Example apps: RTSP, WebRTC, ISP tuning, object detection, image segmentation
- APIs for ML model integration and cloud connectivity

System Requirements

x86 PC running Ubuntu Linux 20.04 • 1TB free disk space

The Oclea™ Adonis Camera Module Block



|                           | Zeus                          | Adonis                               |
|---------------------------|-------------------------------|--------------------------------------|
| SOC                       | Ambarella CV25                | Ambarella CV28                       |
| CPU                       | Quad-Core ARM Cortex-A53 1GHz | Dual-Core ARM Cortex-A53 1GHz CPU    |
| CVFlow Accelerator        | CVflow® 1.0                   | CVflow® 2.0 with enhanced AI ops/sec |
| Storage                   | 8GB eMMC Flash                | 8GB eMMC Flash                       |
| Memory                    | 2GB LPDDR4                    | 2GB LPDDR4                           |
| Encoding performance      | 4Kp30 + 480p30                | 4Kp15                                |
| OS                        | Linux Kernel 5.4              | Linux Kernel 5.4 (CV28 compatible)   |
| Power Efficiency          | -                             | Optimized for ultra-low power        |
| Image Sensor Availability | 1 MP–12 MP, global/rolling    | 1 MP–12 MP, global/rolling           |

PB-Adonis-1.0

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