

Oclea™ CV28 μSoM

The Oclea CV28 System on Module (μSoM) combines the Ambarella™ CV28 SoC, DRAM, FLASH, and key peripherals together in a single package enabling the next generation of ultra low-power vision-AI applications in precision agriculture, smart security, retail, and automotive markets.

The integrated CV28 processor combines image processing, 5MP30 HEVC video encoding, and CVflow™ computer vision processing into a single, low-powered design enabling products that operate ‘on the edge’ of the network and requires no external on-premise or cloud data processing. Therefore, operating costs are lowered, and the reduced latency is an advantage for products requiring real-time decision making.

The flexible Oclea SDK provides a Linux®-based framework and an environment based on GStreamer and includes pre-defined demonstration applications that allow your software team to start immediate development.

The Oclea software platform also includes integrations with leading CNN/DNN frameworks, 3rd party analytics, and cloud service providers, and provides a rich set of APIs that enable a range of product customization options.

KEY FEATURES

Powerful Multi-Format Video Processing

5MP30 HEVC + 720P30 HEVC + 3MP1 MJPEG video encoding performance provides high quality video with efficient H.264 and H.265 encoding.

Computer Vision Engine

Built in hardware acceleration for CNN and DNN networks using CVflow processing with the Oclea μSoM for detection, classification, tracking, and more.

Ultra Low Power

Combining the CV28 SoC’s advanced 10 nm fabrication process with Technique’s highly optimized board design provides a very low power < 1W vision- AI platform for your next generation product.

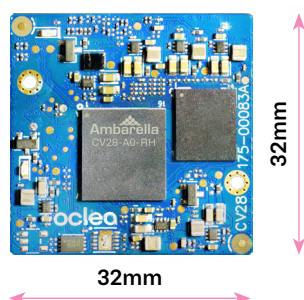
Advanced Image Processing

HDR, hardware de-warping engine support, and 2D/3D Noise correction for excellent low-light image quality.

Oclea 32x32mm Form Factor

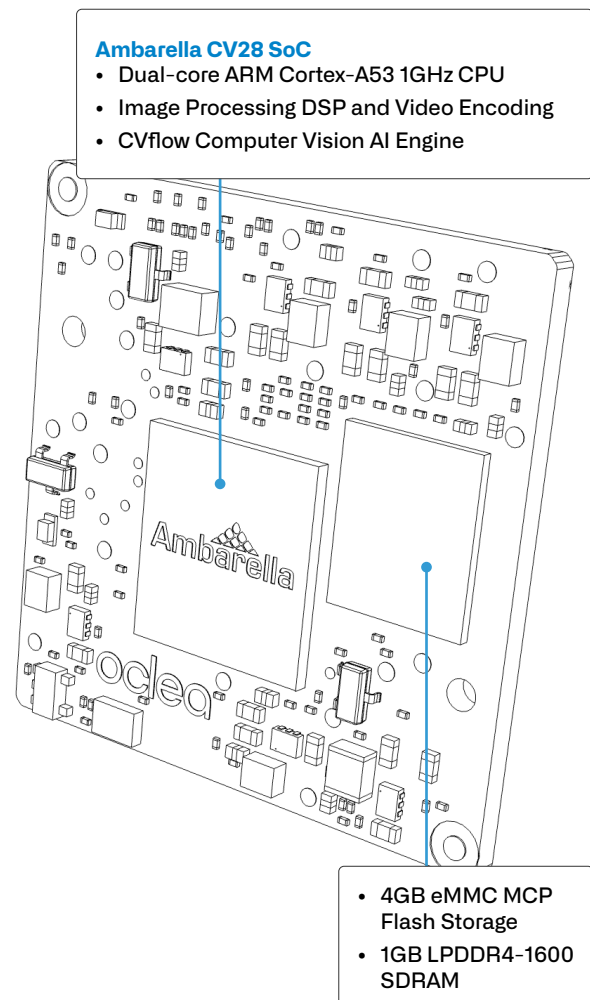
The Oclea CV28 μSoM is a drop-in replacement for the Oclea S5L μSoM or Oclea CV25 μSoM. Full mechanical, electrical and software compatibility allows for an easy upgrade path and product differentiation.

Actual Size



The Oclea CV28 μSoM

Size 32 x 32 x 3.9 mm • Weight 8g



MAIN COMPONENTS

Ambarella CV28 SoC

- Dual-core ARM Cortex -A53 1GHz CPU
- Image Processing DSP and Video Encoding DSP
- CVflow Computer Vision AI Engine

Memory and Storage

- 4GB eMMC MCP Flash
- 1GB LPDDR4-1600 SDRAM
- SDIO Interface Available To Main Board

INPUT/OUTPUT INTERFACES

Rich Video Sensor Interface

- Primary Sensor Input
 - up to 8 Lane SLVS/MIPI
 - 8 bit parallel LVDS
- Secondary Sensor Input
 - up to 4 Lane SLVS/MIPI
- Third Sensor Input
 - up to 2 Lane SLVS/MIPI
- Multi-VIN is shared between 8 lanes
- Maximum Input Rate – 420MPixel/s

USB 2.0 Host/Device

MIPI-CSI/DSI Output Interfaces

Gigabit Ethernet

Many Additional Peripherals

- UART, I2C, GPIO, I2S, PWM, etc

POWER CONSUMPTION AND SDK

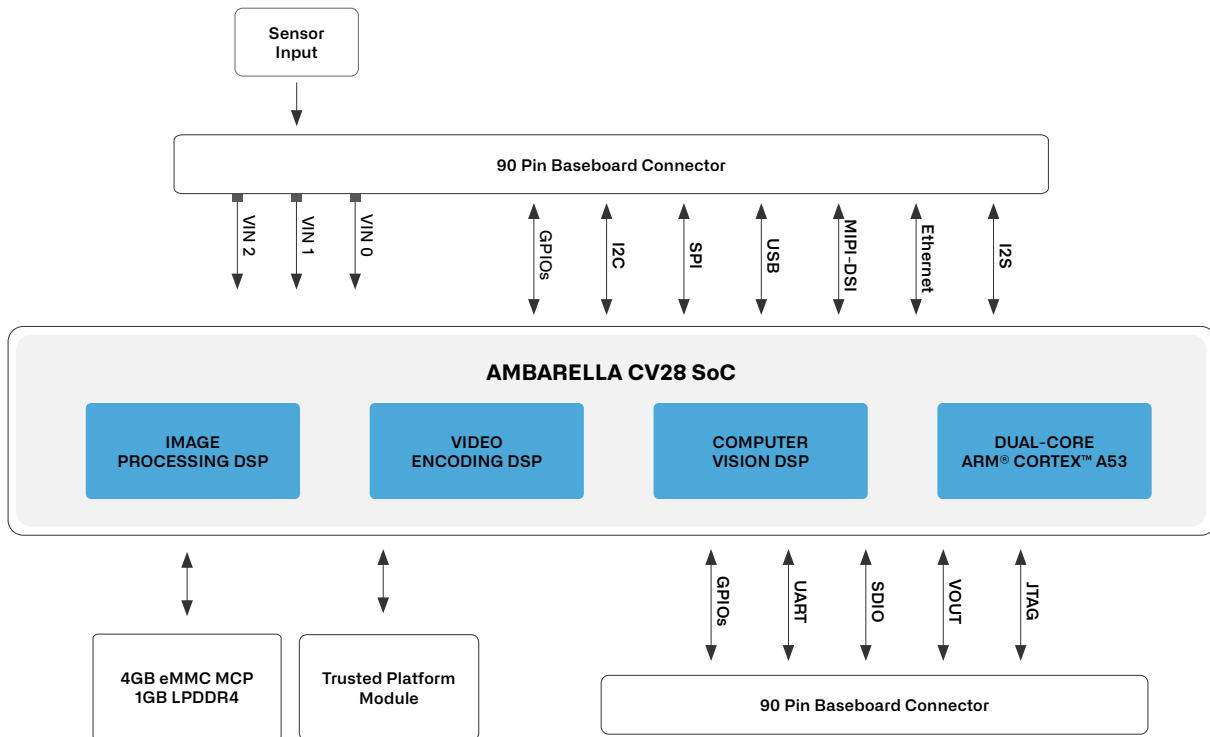
Lab measured power consumption

- 1080p H.264 streaming = 0.9W

Mature and Highly Programmable Software Development Kit (SDK)

- Custom build your Oclea OS using the Yocto Project® build tools
- Linux® Version 5.4
- GStreamer framework with sample demo applications in full source
- Includes integrations with leading CNN/DNN frameworks and 3rd party analytics
- Rich set of APIs that enable a wide range of product customizations.

A NOTE ON SENSOR SUPPORT Please check with your Sales Representative regarding Image Sensor options and Video Input support. New sensors or video input support may require NRE or custom engineering services.



Oclea Part Number	Description	Key difference
OC-uSOM-32-CV28-1	Oclea SoM, CV28, 4GB eMMC, 3.3Volt, 1GB DRAM, 32x32mm	Interchangeable with other Oclea CV25 μSoM and Oclea S5L μSoM designs
OC-uSOM-32-CV28-LV-1	Oclea SoM, CV28, 4GB eMMC, 1.8Volt, 1GB DRAM, 32x32mm LOW VOLTAGE SOM.	Ultra low-power consumption - requires unique baseboard design.

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