



Embedded Vision Camera Platform

iVS-CV28P



Unlock the full potential of vision data for your application.

Embedded, modular, cloud-connected, and secure – iENSO develops and delivers vision systems for any application.

Key features:

- Dual-core Arm® Cortex®-A53 up to 1 GHz
- Up to 4Kp30 maximum encoding performance
- CNN / DNN inference acceleration for detection, classification, and more
- +320 MPixel/s input rate
- Multi exposure HDR
- RTC
- 180° fisheye lens distortion correction
- MIPI sensor with LED illumination and IR filter control
- H.265/HVEC, H.264, MJPEG encoding
- Support for 16-bit LPDDR4(x) / DDR4
- Secure boot with TrustZone® and secure memory
- Broad image sensor support
- Based on 10nm low-power CMOS process

Sensor Connector		Block Diagram			Wi-Fi + BLE Module
MIPI	ALS Sensor	Image Signal Processor (ISP)	Dual-Core ARM® CORTEX A53 NEON FPU Extension	Computer Vision Processor CVFlow™	POE Module Connector
IR Filter Control	LED Illumination Control	System Peripherals Timers, UART, JTAG, SPI, RTC, I2C, I2S, GPIO, PWM, ADC	Memory LPDDR4 / DDR4 16-Bit SPI NAND	Video CODEC AVC/HVEC/MJPEG Multi-CH, Encode	LTE Module Connector
MIC Connector		Interfaces/Inputs MIPI CSI-2, PIR, ALS, Mic	Security Features Secure Boot – Trust Zone®, TRNG, OTP, DRAM Scrambling and DRAM Virtualization	Connectivity USB 2.0, SDI/SDIO, Ethernet, LED illumination, Speaker	Micro SD Connector
					Speaker Connector

Give your vision the edge

- Application-based turnkey embedded vision solutions
- Edge AI for powerful on-device decision-making
- Flexible Cloud platform and end-to-end security



HARDWARE SPECIFICATIONS - iVS-CV28P

Ambarella CV28 Based Vision SoC

Processor	<ul style="list-style-type: none">• Dual-core Arm® Cortex®-A53 up to 1 GHz• NEON™ SIMD and FPU acceleration• 10 nm low-power CMOS
Sensor I/O	<ul style="list-style-type: none">• MIPI CSI-2, sLVDS, SLVS• Supports up to 8MP CMOS image sensor
Advanced Image Signal Processing	<ul style="list-style-type: none">• Up to 320 Mpixel/s maximum pixel rate• Lens shading correction• Multi-exposure HDR• 3D motion compensated noise reduction (MCTF)• 3-Axis Electronic Image Stabilization (EIS)• Digital PTZ and Virtual Cameras• OSD engine, overlays, privacy mask• Crop, mirror, flip, rotation• On-chip stitching• Geometric lens distortion correction• Gamma compensation and color enhancement• WDR with local tone mapping
Video Processing	<ul style="list-style-type: none">• H.265 / HEVC, H.264, MJPEG• Up to 4KP30 encoding performance• Dynamic region of interest (ROI)• Multiple CBR and VBR rate control modules
AI Power Intelligence Video Analytics	<ul style="list-style-type: none">• CVFlow® vision processor for CNN/DNN edge analytics• Pre-integrated AI Detectors or provide your own• Can utilize models trained with industry-standard tools such as Caffe, TensorFlow or PyTorch
Networking & Connectivity	<ul style="list-style-type: none">• Wi-Fi 802.11 2.4/5GHz• BT / BLE• LTE Module (optional)• Ethernet PoE Module (optional)
Audio	<ul style="list-style-type: none">• Audio Codec• Line In and Line Out
Memory	<ul style="list-style-type: none">• Up to 8Gb LPDDR4 DRAM• 4Gb SLC NAND Flash
Other Interfaces	<ul style="list-style-type: none">• USB 2.0 (Device / Host)• Micro SD• LED Flash Control• IR Filter Control
Security	<ul style="list-style-type: none">• AES / SHA1 / SHA2-256 crypto acceleration• Secure boot with TrustZone® and secure memory, TRNG, OTP, DRAM scrambling and virtualization• Optional SOC monitoring
Power In	<ul style="list-style-type: none">• 12 VDC• PoE with PoE Module option
Physical	<ul style="list-style-type: none">• Standard Board size options – 42mm x 42mm standard• Custom board size available
Environmental	<ul style="list-style-type: none">• Operating temperature: -20°C to 70°C• Operating humidity: 5% to 90%
OS	<ul style="list-style-type: none">• Linux
Camera Modules	<ul style="list-style-type: none">• Sensor Modules up to 8MP/4K• Multiple lens options• IR or white LED illumination options• IR Filter for night vision options



SECURITY



PRECISION FARMING



HOME AUTOMATION



SMART APPLIANCES



IoT



Additional information:

• Compatible sensor modules (iSM):
[iENSO.com\ism](https://www.iensocom.com/iSM)

• Custom module versions available upon request

Contact [iENSO.com](https://www.iensocom.com) to discuss your specific needs



www.iensocom.com



Established in 2003, iENSO provides embedded vision data systems that help global brands turn their products into vision data devices. iENSO provides fully secure end-to-end solutions that capture vision data and process it at the Edge and in the Cloud, giving product companies the opportunity to unlock the business benefits of recurring revenue and data monetization.

Americas

Global HQ Toronto
20 Mural St., Unit 7
Richmond Hill, ON Canada L4B 1K3
(905) 763-6938 • vision@iensocom.com

Europe

Kyiv, Ukraine • EU@iensocom.com

Middle East

Tel Aviv, Israel • ME@iensocom.com

Asia

Shenzhen, PRC • Asia@iensocom.com