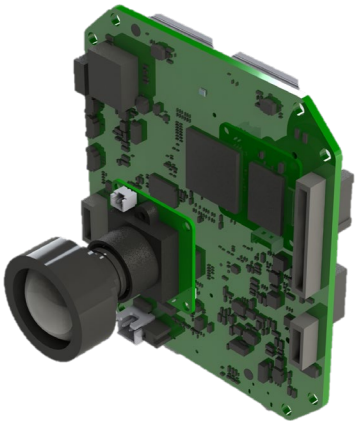
VISION AI CLOUD SECURITY

Embedded Vision Camera Platform

iVS-CV22

Unlock the full potential of vision data for your application.

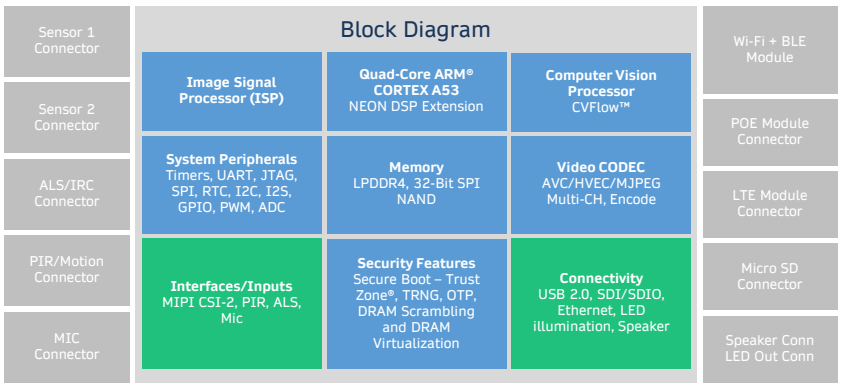


Embedded, modular, cloud-connected, and secure – iENSO develops and delivers vision systems for any application.

Key features:

- Quad-core Arm ®Cortex®-A53 up to 1 GHz
- Up to 4Kp60 maximum encoding performance
- CNN / DNN inference acceleration for detection, classification, and more
- +700 MPixel/s input rate
- Multi exposure HDR and 3-axis image stabilization
- 180° and 360° fisheye lens distortion correction
- Single or dual sensor input with independent ISP configuration
- H.265/HVEC, H.264, MJPEG encoding
- Support for 32-bit LPDDR4 / LPDDR4x secure boot with TrustZone® and secure memory
- Broad image sensor support
- Based on 10nm low-power CMOS process

Block Diagram



iENSO

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-CV22

Ambarella CV22 Based Vision SoC

Processor	• Quad-core Arm® Cortex®-A53 up to 1 GHz • NEON™ SIMD and FPU acceleration • 10 nm low-power CMOS
Sensor I/O	• MIPI CSI-2, sLVDS, SLVS • 2 sensor inputs • Supports up to 20MP CMOS image sensor
Advanced Image Signal Processing	• Up to 720 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	• H.265 / HEVC, H.264, MJPEG • Up to 4KP60 encoding performance • Up to 8 simultaneous stream encodes • Dynamic region of interest (ROI) • Multiple CBR and VBR rate control modules
AI Power Intelligence Video Analytics	• 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	• Wi-Fi 802.11a/b/g/n/ac (integrated) • BT4.2+ BLE (integrated) • mini-PCIe LTE Module (optional) • 10/100/1000Mbps Ethernet PoE Module (optional)
Audio	• Audio Codec • Line In and Line Out
Memory	• 16Gb LPDDR4 DRAM • 4Gb SLC NAND Flash • Optional eMMC storage
Interfaces	• USB 2.0 (Device / Host) • Micro SD • SPI, I2C, JTAG, UART, GPIO, PWM, ADC • LED Flash Control • Expansion I/O Port: MIPI-DSI, HDMI, GPIO
Security	• AES / SHA1 / SHA2-256 crypto acceleration • Secure boot with TrustZone® and secure memory, TRNG, OTP, DRAM scrambling and virtualization • Optional SOC monitoring
Power In	• 12 VDC +/- 15%
Physical	• Board size - 89 x 89 (mm) / 3.5 x 3.5 (inch) • Custom board size available
Environmental	• Operating temperature: -20°C to 70°C • Operating humidity: 5% to 90%
OS	• Linux
Camera Modules	• Sensor modules up to 20MP • Multiple lens options • IR or white LED illumination options • IR Filter for night vision options

- **SECURITY**
- **PRECISION FARMING**
- **DRONES**
- **INDUSTRIAL / ROBOTICS**
- **IoT**
- **AFTERMARKET AUTOMOTIVE**

Ambarella™

Additional information:

- Compatible sensor modules (iSM): iENSO.com\ism
- Custom module versions available upon request

Contact ienso.com to discuss your specific needs

iENSO

www.ienso.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.

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