

iSOM-AWA83

SYSTEM-ON-MODULE

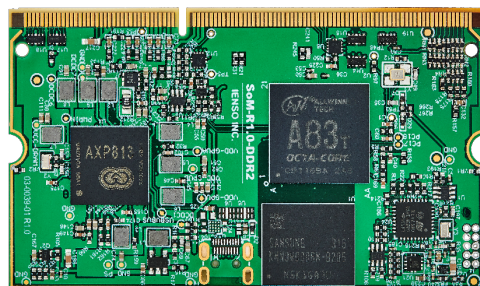
The iSOM-AWA83 is part of iENSO's modular ecosystem of SOMs, camera modules, and wireless connectivity modules. The SOMs can be used with our Sony, OmniVision, or OnSemi camera modules. Add a wireless connectivity module to build an IoT camera using either a Wi-Fi/Bluetooth module or fully 3GPP compliant cellular modems (LTE Cat 1 or Cat M1).

APPLICATIONS

- Rapid prototyping for embedded vision
- Robotics and industrial automation
- Action/sport/wearable cameras
- Video conferencing and telepresence
- AR/VR and immersive video
- Public View Monitor security cameras
- After-market automotive cameras

KEY SPECIFICATIONS

- CPU: Octa-core ARM Cortex™-A7, 2.0 GHz, low power consumption
- GPU: PowerVR SGX544, 1080p60 H.264/JPEG codec, multiformat playback
- OS: Android 6.0 or above and Linux: kernel version 3
- Camera interface: 4-lane MIPI CSI2 (to 8 M), 10-bit parallel to 5 M
- ISP: Integrated HawkView® ISP, AE/AF/AWB controls, zone-based statistics
- Image corrections: defects, shading, color correction, 2D noise reduction
- Display out: 1080p60 MIPI DSI 4-lane, LCD RGB, or HDMI 1.4; LVDS 720p60



EXCEPTIONAL PERFORMANCE

The AWA83-SOM (68mm x 40mm), with DIMM connection, delivers exceptional performance based on Allwinner System-on-Chip multimedia applications processor with 8-core ARM Cortex™ A7 Architecture and PowerVR SGX544 GPU.

ROBUST AND COST-EFFECTIVE

The integrated ISP provides MIPI CSI-2 and parallel interfaces with megapixel CMOS sensors up to 4K resolution. A PowerVR SGX544 GPU, Video Engine & Display Subsystem enable advanced graphics, multimedia, and display.

AVAILABLE CAMERA MODULES

- Sony IMX317 or IMX274/IMX326
- OmniVision OV8865 (8M)
- OnSemi AR0521 (5.1M), OnSemi AR0144 (1.0M), AR0130 (1.2M)
- Silicon Optonics JX-F22 (1080p0), JX-KO2 (4M)

AVAILABLE WIRELESS MODULES

- Cellular LTE CAT M1
- Wifi /Bluetooth

CPU:

- Octa-core ARM Cortex™-A7, 2.0 GHz, 2x 256 kB
- L1 cache, 2x 512 kB L2 cache
- TSMC 28 nm HPC process
- Low power consumption with Allwinner CoolFlex PMIC

GPU:

- Power VR SGX544 by Imagination Technologies
- Support OpenGL ES 2.0/1.1 graphics API
- Supports OpenCL 1.1, DX 9_3 framework

CAMERA IN:

- A: 4-lane MIPI CSI2 interface, 8M at 30 fps, 1080p60, RAW-8/RAW-10/RAW-12, YUV422 or YUV420, 8-bit or 10-bit, RGB888 or RGB565
- B: 10-bit parallel interface, 5M max. resolution, 720p30, CCIR656 (NTSC/PAL), ITU BT.656

ISP:

- Integrated HawkView® Image Signal Processor
- Outputs: Semi planar YCbCr420/YCrCb420
- YCrCb422, Planar YUV420/YUV422
- Auto-exposure control, Autofocus, Automatic white balance with zone-based statistics, histogram
- Image flip and rotation, Defect pixel correction, Lens shading correction
- False color suppression (Anisotropic nonlinear Bayer interpolation), Programmable color correction, Contrast enhancement, Sharpening, Saturation adjustment, 2D noise reduction filter, Chrominance noise reduction, Anti-flicker statistics

OS: Linux: kernel version 3; Android: 6.0 or above

VIDEO CODEC:

- Encode: H.264 1080p60 or 720p120, JPEG
- Decode: H.264 1080p@60fps, MJPEG
- Multi-format playback: H.264 BP/MP/HP, H.265/ HEVC MP/L5.2, VP8/VP9/MJPEG1/2, MPEG4 SP/ASP GMC, H.263 including Sorenson Spark, WMV9/VC-1, JPEG/MJPEG

DISPLAY

- A: HD1080p60/1920x1200 4-lane MIPI DSI, RGB
- LCD, or HDMI 1.4 (HDCP V1.2)
- B: HD 720 dual display for LCD 720p60
- C: LVDS 1366x768 at 60fps

POWER: Standby is 20mW and 1.6W with a 5M sensor

MEMORY:

- 32-bit DDR3/DDR3L/LPDDR3/LPDDR2 up to 2 GB,
- SLC/MLC/TLC/EF NAND with 64-bit ECC, 3x SD/eMMC

SOC CONNECTIVITY:

- 4G/3G/2G module, USB 2.0 DRD, Ethernet MAC
- (10/100/1000 Mbps), CIR receiver for IR remote,
- LRADC (6-bit)
- 2x USB 2.0, 2x SPI, 4x 2-wire interface/I2C TWI, 6x UART, Reduced Serial Bus
- (RSB) up to 20 Mbps, HSIC, 2x I2S/PCM, PWM

THE RIGHT EMBEDDED VISION SYSTEM FOR YOUR APPLICATION

CONSISTENT QUALITY: From six-axis lens alignment to consistently accurate color quality, to AI and ubiquitous connectivity, we guarantee that every iENSO embedded vision system will perform to spec.

SECURE SUPPLY: With iENSO engineers on the floor in all of our manufacturing partner facilities, we guarantee the quality and quantity of supply you need to make your application a success.

COMPELLING ECONOMICS: With our years of experience in the design and development of industrial, machine and consumer vision technologies, we can provide a cost-effective, no compromise embedded vision solution for your application.

ABOUT iENSO

Established in 2003, iENSO provides imaging and wireless solutions that are helping global brands take their products to the next level in the age of embedded systems and AI platforms. iENSO accelerates the deployment of innovative imaging and wireless products in a wide range

of verticals such as IoT, home automation, automotive, drones, professional entertainment, robotics, remote surveillance and security. With offices in Canada and China, iENSO has perfected the engineering ecosystems that exist between initial design and high-volume manufacturing.



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