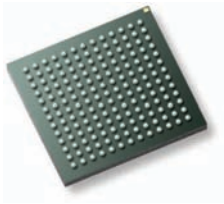


OA7000 video processor product brief

Mainstream, Ultra Low Power & Cost Effective Video Processor for Security and Surveillance Applications

lead free

available in a lead-free package

OmniVision's OA7000 video processor, building on the success of its predecessor, the OV798, provides a more cost effective solution for battery powered intrusion cameras and video doorbells. It includes industry leading technologies for low power consumption and fast boot-up. When paired with OmniVision's unique and sophisticated RGB-Ir sensors, it eliminates the need for a mechanical IR cut filter, which further optimizes the camera size and enhances system reliability.

Additional improvements include a triple-core ARM® Cortex® A5 CPU with NEON® support. This high-performance processor enables more advanced video analytics algorithms to be done on-chip, which reduces false alarms and increases battery life. Thanks to the powerful processor and integrated audio CODEC, high quality audio with noise reduction and echo cancellation is now available without extra cost.

A newly redesigned and more power efficient high dynamic range (HDR) ISP with RGB-Ir support is available on the OA7000. Combining the benefits of RGB-Ir and HDR, it shows every detail of the most challenging scenes with widely contrasting dark and bright areas, which are commonly found in video doorbell footage.

As cybersecurity becomes increasingly important, the OA7000 provides security features for secured boot up and live streaming.

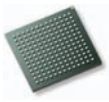
Find out more at www.ovt.com.

OmniVision

Applications

- Security and Surveillance

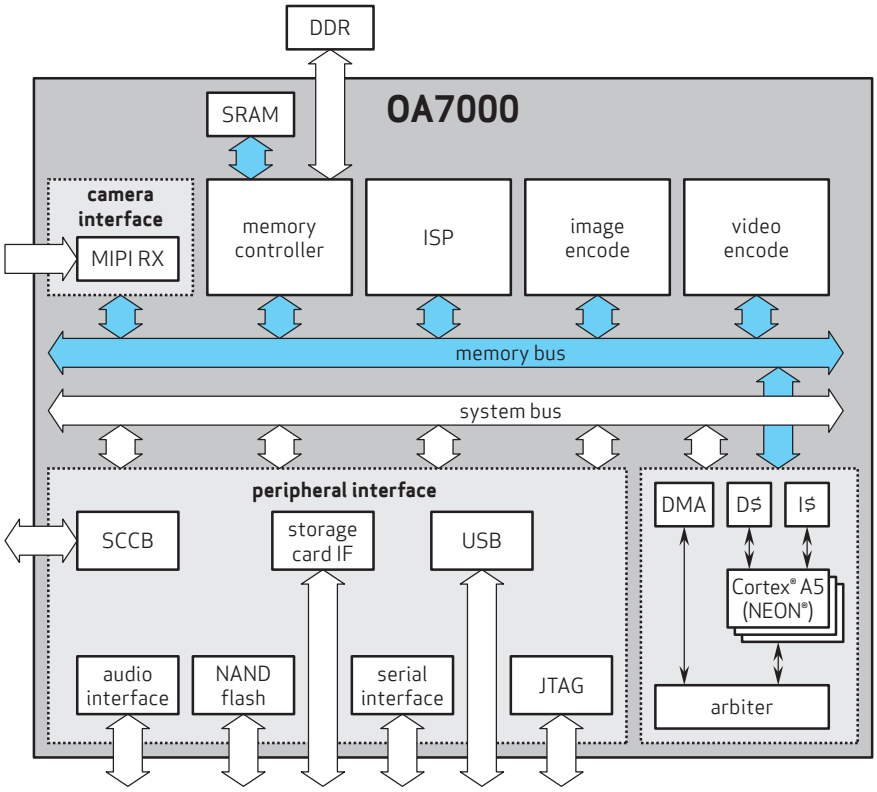
OA7000
(Preliminary)



Product Features and Specifications

- video encoder:
  - high-profile advanced video encoder
  - JPEG encoder for still pictures
- image signal processor features:
  - gen2 RGB-Ir sensor support
  - HDR support (staggered mode) with RGB-Ir
  - built-in 3D noise reduction
  - max still picture capture: 2MP at 48 fps
- special features:
  - extremely low power consumption
  - fast bootup
  - secure boot
  - smart video analytics for longer battery life
  - dewarping and rotation
  - built in audio CODEC for audio record/play and echo/noise cancellation
- camera interfaces:
  - MIPI one 2-lanes, two 1-lane receiver
  - supports up to 4MP image sensor
  - SCCB master to access image sensor
- image signal processor:
  - RGB-Ir processing
  - HDR processing
  - 10-bit RAW to YUV processing
  - adjustable AEC/AGC, AWB and autofocus
  - color correction/adjustment, gamma correction and contrast adjustment
  - 16x16 zone lens shading correction and online color shading correction
  - lens distortion and perspective correction
  - defective pixel correction
  - mirror, flip and rotation
  - supports up to 4X digital zoom
  - 3D/2D de-noise filter
- video engine:
  - supports single-stream video recording with a maximum resolution of up to 1080p at 48 fps (1920 x 1080)
  - supports dual-video-stream recording with one 1080p at 30 fps (1920 x 1080) stream and one 720p at 30 fps (1280 x 720) stream
  - supports triple-video-stream recording with three 720p at 30 fps (1280 x 720) streams
  - rate control to support various and constant bit rates
- video processing:
  - cropping and scaling
  - dewarping and rotation
- video analytics:
  - built-in advanced motion-detection engine
- still picture:
  - supports still picture capture of up to 2 megapixels at 48 fps
  - supports still picture compression
- storage interfaces:
  - one storage I/O peripheral interface, that can be used for an external Wi-Fi module
  - one storage card interface
  - NAND flash interface for 8-bit and 16-bit, with up to 8-bit BCH ECC
  - supports serial-interface NAND devices, with or without ECC engine
- USB:
  - USB2.0 HS/FS device controller
- audio CODEC and audio engine:
  - built-in 20-bit sigma delta ADC and 20-bit mono DAC, with full-duplex audio, AGC and echo/noise cancellation
  - embedded audio engine for audio recording and playback
  - full-duplex audio serial interface (up to 2 channels)
  - supports various audio formats
- security engine:
  - supports AES/DES/3DES encryption and decryption
  - supports secure boot
- embedded triple-core ARM® Cortex® A5 CPU with NEON® and FPU
  - 16KB I-cache, 16KB D-cache for Core 0 and Core 1
  - 32KB I-cache, 32KB D-cache for Core 2
- DDR-SDRAM controller:
  - LPDDR2/DDR3 16-bits wide
- miscellaneous:
  - UART, timers, watchdog timer, general-purpose I/O, JTAG
- power supply:
  - core: 1.1V
  - analog: 3.3V
  - DDR I/O: 1.2V (LPDDR2) / 1.35V (DDR3L) / 1.5V (DDR3)
  - I/O: 1.8V/3.3V
  - PLL: 1.8V
- temperature range:
  - commercial grade operational temperature: -30°C to +85°C

Functional Block Diagram



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