OmniVision's OA805 is a video processor that supports high-efficiency video coding (HEVC) compression with the lowest power consumption in the industry. This advanced video compression standard reduces storage requirements and enables the streaming of 4K videos over wireless connections. The OA805 is extremely power efficient, and is making HEVC possible for battery-powered security cameras and video doorbells for the first time. Together with the industry's fastest boot-up time of 0.1 seconds, the OA805 allows designers to incorporate leading-edge performance into products that their customers can quickly and easily install anywhere, and never miss a thing. Furthermore, because the processor consumes no power when it is off, the overall power consumption of the security camera is extremely low and allows the camera to have up to two years of battery life.

The OA805 is a system-on-chip (SoC) featuring dual embedded Arm® Cortex®-A5 CPU cores with Neon™ technology for accelerated audio and video encoding/decoding, along with image processing, video encoding hardware and RGB/IR processing. Its high dynamic range (HDR) processing capability allows the OA805 to accept input from RBG/IR image sensors and support high-quality displays, for videos taken during the day or at night, in conditions with widely contrasting bright and dark images.

This video processor accepts up to 16-megapixel captures from an image sensor and outputs up to 4K resolution video at 30 frames per second (fps) using HEVC encoding and decoding. It also supports multiple video streams at lower resolution, including H.264 1080p resolution at 60 fps, as well as HDR and RGB-IR.

Find out more at www.ovt.com.
Product Features and Specifications

- **general features**
  - Highly integrated low power and fast boot up video processor
- **camera interfaces**
  - MIPI one 4-lane or two 2-lane receiver
  - Supports up to 16MP image sensor
  - SCCB master to access image sensor
- **image signal processor**
  - Supports various audio formats
  - Two audio serial interfaces for full duplex
  - Supports external audio CODEC through
  - Supports mass storage class
  - Supports UVC video class
  - USB2.0 HS/FS device controller
  - One storage card peripheral interface
  - Supports still picture compression
  - Supports still picture capture up to 16MP
  - Supports up to 4X digital zoom
- **audio interface**
  - Supports external audio CODEC through
  - Supports various audio formats
- **video engine**
  - Supports single video recording with a
  - Supports dual video stream recording with
  - Supports on-screen display (OSD)
  - Supports various audio formats
- **security engine**
  - Supports AES/DES/3DES encryption/decryption
  - Supports secure boot with firmware image authentication and allowing JTAG accesses to authenticated users
- **display interface**
  - Supports dual lane transmitter
  - Supports 10-bit DVP output
  - Supports on-screen display (OSD) and scaling functions
- **embedded microcontrollers**
  - Main ARM® Cortex® A5 MCU (CPU)
  - Supports 32 KB instruction cache and 32 KB data cache
  - Supports ARM® A5 MCU
  - Supports NEON® acceleration
  - Supports 32-bit RISC MCU
  - Supports 8 KB instruction cache and 8 KB data cache
- **DDR-SDRAM controller**
  - Supports LPDDR2 16/32 bits wide
  - Supports various external DDR memories
  - Supports DDR3 and DDR3L
  - Supports LPDDR2 16/32 bits wide
  - Supports DDR3 and DDR3L
  - Supports DDR I/O: 1.2V (LPDDR2) /
  - Supports analog: 1.8V/3.3V
  - Supports core: 0.9V
  - Supports embedded USB PHY
  - Supports embedded PLLs
  - Supports dedicated JTAG interface
- **miscellaneous**
  - Dedicated JTAG interface
  - Embedded PLLs
  - Embedded USB PHY
- **power supply**
  - Core: 0.9V
  - Analog: 1.8V/3.3V
  - DDR I/O: 1.2V (LPDDR2) / 1.35V (DDR3L) / 1.5V (DDR3)
  - PLL: 1.8V
  - EFUSE VPP: 1.8V
- **temperature range**
  - Commercial grade operational temperature: -30°C to +85°C
  - Package dimensions: 11mm x 11mm

Functional Block Diagram