OV788-IP product brief

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a lead-free
package

Low-Power 720p High Definition IP Camera Solution for Home Security and Surveillance Systems

OmniVision's 720p high definition (HD) IP camera platform offers an industry-leading low power and fast boot-up design, ideally suited for consumer-level home security and surveillance applications. The camera platform utilizes WiFi technology and video encoding to transmit the 720p HD video at 30 frames per second (fps) to remote viewing devices with Internet access, such as smartphones, tablets or notebooks.

The IP camera platform leverages OmniVision's OV788, a highly integrated, low power dual core multimedia camera processor, which supports two widely used operating systems. One option is OmniVision's proprietary Real Time Operating System (RTOS), which is lightweight and requires no external memory. The other option is a feature-rich Linux operating system that provides the most compatible platform for networking protocols.

Utilizing an embedded advanced ISP, the OV788 supports 720p high definition RAW image sensors up to 30 fps. In addition to an embedded compression engine, the OV788 supports still image capture up to 16 megapixels at 5 fps.

The OV788 implements an advanced video engine to achieve high performance video recording and decoding. The engine is capable of recording three video streams in full VGA at 30 fps, or decoding three video streams in full VGA at 30 fps and four video streams in full QVGA at 90 fps.

OmniVision's 720p HD IP camera Product Development Kit (PDK) provides the total solution, which includes hardware, firmware, and an iOS and Android app.

Find out more at www.ovt.com.

OV788-IP

OV788-IP Product Specifications

- **power supply:**
  - **core:** 1.2V ±5%
  - **analog:** 3.3V ±10% (USB), 2.5V ±10% (MIPI), 2.8V ±10%
  - **I/O:** 3.3V ±10%

- **temperature range:** -30°C to 70°C

- **power requirements:**
  - recording 720p at 30 fps: 290 mW
  - recording VGA at 30 fps: 125 mW

- **package dimensions:** 11 mm x 11 mm

Ordering Information

- OV09712-ECVF-AW1A

OV788-IP Product Features

- general features
  - highly integrated multimedia camera processor provides low system integration cost without external memory required

- camera interfaces
  - MIPI two-lane receiver or 10-bit RGB raw or YUV input
  - supports up to 16MP image sensor

- image signal processor
  - raw to YUV processing
  - auto white balance (AWB)
  - edge enhancement
  - hue and saturation control
  - brightness and contrast control
  - lens shading
  - defective pixel correction
  - auto focus

- video engine
  - supports video recording up to 720p (1280x720) at 30 fps
  - rate control to support various bit rates
  - flexible motion detection with programmable zones
  - supports video decoding up to 720p (1280x720) at 30 fps
  - supports full duplex encoding and recording up to VGA resolution at 30 fps

- TV support
  - embedded TV encoder and video DAC supports NTSC or PAL

- SDRAM controller
  - supports external SDRAM at 133 MHz with 16-bit data width up to 128 MB

- storage card/ NAND flash interfaces

- USB device controller
  - USB2.0 HS/FS
  - supports UVC video class for PC camera
  - supports mass storage class

- USB host controller
  - USB2.0 HS/FS

- general purpose I/O (GPIO)
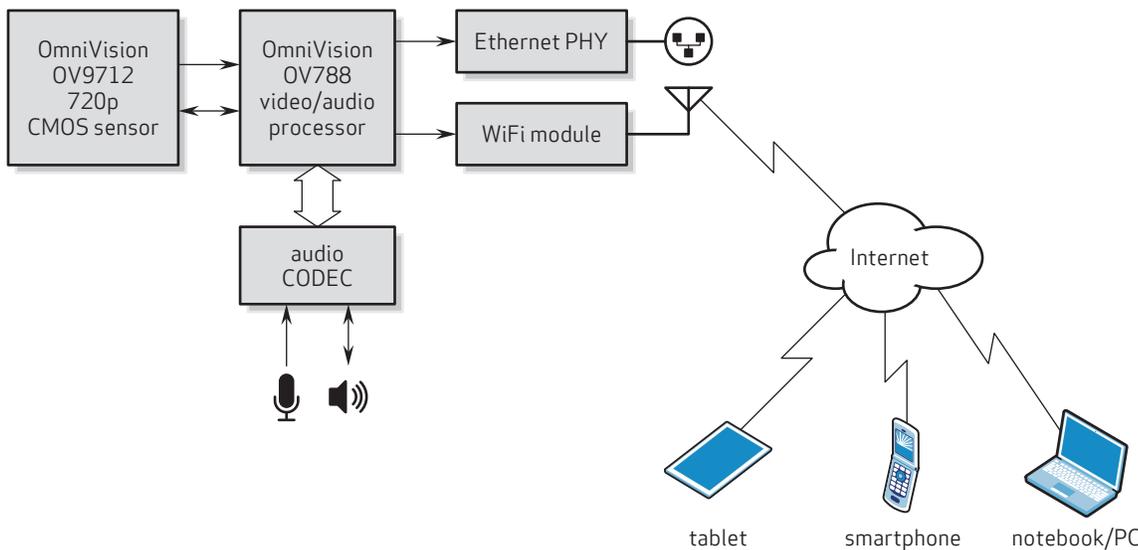 - flexible GPIO capability for most of the I/O pins

OV9712 Product Features

- high sensitivity for low-light operation

- ultra low power and low cost

- programmable controls: frame rate, AEC / AGC 16-zone size / position / weight control, mirror, flip and windowing

- output support for raw RGB

- digital video port (DVP) parallel output interface

- embedded one-time programmable (OTP) memory

- on-chip phase lock loop (PLL)

- built-in 1.5V regulator for core

OV9712 Product Specifications

- **active array size:** 1280 x 800

- **power supply:**
  - **analog:** 3.0 - 3.6 V
  - **core:** 1.5VDC ±5% (built-in regulator)
  - **I/O:** 1.7 - 3.6 V

- **power requirements:**
  - **active:** 110 mW
  - **standby:** 50 μA

- **temperature range:**
  - **operating:** -30°C to 70°C
  - **stable image:** 0°C to 50°C

- **lens size:** 1/4"

- **lens chief ray angle:** 25° non-linear

- **input clock frequency:** 6 - 27 MHz

- **maximum image transfer rate:**
  - **WXGA (1280x800):** 30 fps
  - **640x400:** 60 fps

- **sensitivity:** 3700 mV/Lux-sec

- **max S/N ratio:** 40 dB

- **dynamic range:** 69 dB @ 8x gain

- **pixel size:** 3 μm x 3 μm

- **package dimensions:** 5415 μm x 4415 μm

Functional Block Diagram

OmniVision OV9712 720p CMOS sensor → OmniVision OV788 video/audio processor → Ethernet PHY

OmniVision OV788 video/audio processor → WiFi module

audio CODEC

Internet → tablet, smartphone, notebook/PC

OmniVision®