

performance video recording or decoding up to the 720p resolution at 30 fps without requiring any external memory. The engine is capable of recording dual video streams up to VGA resolution at 30 fps, or decoding dual video streams up to VGA at 30 fps and quad video streams up to QVGA at 60 fps. Along with an embedded audio engine and depending on audio formats, the OV788 records and decodes mono/stereo audio with video clips.

The OV788 supports various types of LCD displays up to 720p HD with color depth up to 24-bits (RGB888). The LCD interface shares one DVP output port that can connect to external devices such as an HDMI transmitter. The OV788 also supports analog TV output.

The OV788 combines various parallel and serial peripheral interfaces including a storage card interface, serial interface, serial audio interface, SCCB interface, UART interface, USB device interfaces with embedded PHY.

OmniVision has teamed up with Texas Instruments and created a [reference design for battery-operated smart home security cameras](#). This new reference design combines OmniVision's power-efficient Video Processor and HD image sensor with Texas Instruments' Wi-Fi® technology that can help innovative startups and small- to medium-size smart home camera manufacturers compete in the rapidly growing do-it-yourself (DIY) smart home security system market.

Video engine:

- Supports video recording up to 720p (1280x720) at 30 fps
- Supports dual video stream recording up to VGA (640x480) 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 dual video stream decoding up to VGA (640x480) and quad video stream decoding up to QVGA (320x240) at 60 fps
- Supports full duplex encoding and recording up to VGA resolution at 30 fps

DSC functions:

- Supports still picture capture up to 16MP
- Supports still picture playback through display interface

Display controller:

- Supports LCD panels with different interfaces including serial interface, parallel interface and MCU interface
- Supports up to 720p resolution display and color depth up to 24 bits (RGB888)
- Supports On-Screen Display (OSD) and scaling functions
- Supports color space conversion
- Supports DVP output mode
- Supports camera input bypass through DVP

TV support:

- Embedded TV encoder and video DAC supports NTSC or PAL
- Supports external HD transmitter to display 720p video

2D graphics engine:

- Supports 3-ROP graphics operation
- Supports BITBLT rectangular fill, line draw, and blending
- Deep command FIFO with shadowing

Audio engine:

- Embedded audio engine for audio recording and playback
- Supports external audio CODEC through an audio serial interface for full duplex audio functions
- Supports various audio formats
- Supports a digital microphone

Embedded microcontroller:

- 32-bit RISC MCUs
- Supports 32 KB data cache and 32 KB instruction cache



- Host interfaces:
- 16-/18-bit MCU interface
 - UART interface
 - Serial interface (can be either master or slave)
 - SCCB master interface
- Storage card interface:
- Supports burst mode
 - Supports storage I/O peripheral interface
- USB device controller:
- USB2.0 HS/FS
 - Supports UVC video class for PC camera
 - Supports mass storage class
- MIPI receiver:
- Built in MIPI receiver supporting CSI
 - Supports up to 800 Mbps
- General purpose I/O (GPIO):
- Flexible GPIO capability for most of the I/O pins
 - GPIO00 to GPIO19 equip with interrupt capability
- Miscellaneous:
- Dedicated JTAG interface
 - Embedded power switches to control power domains
 - Embedded PLLs
 - Embedded USB PHY
 - Embedded TV video DAC

Part Specification

Spec	OV00788-L28G-1D	OV00788-B46G-1E
Chroma	RGB	RGB
Cores	Dual	Dual
Encoder	H.264	H.264
Operating System	RTOS	RTOS
DRAM Stack	No	No
Package Size	14 mm x 14 mm	11 mm x 11 mm
Sensors Supported	OV9732 OV9712	OV9732 OV9712
Product Guide	PDF	PDF

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