OV798 camera video processor product brief

- Baby Monitor
- Burglar Monitor
- Monitor
- Doorbell
- 360° Camera
- Locks

Battery-Operated Smart Home Monitoring Camera Applications
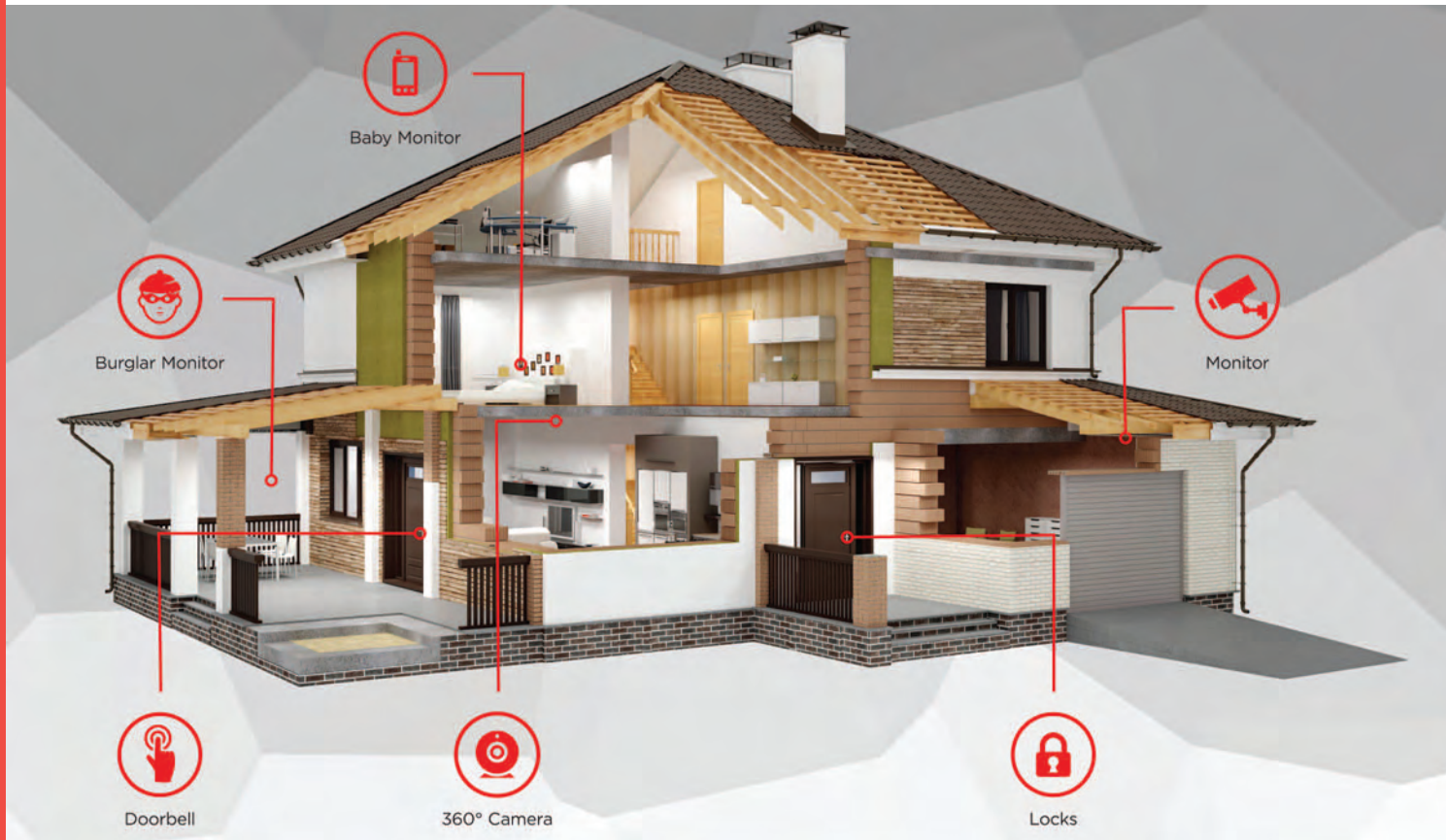
lead free

available in a lead-free package

The OV798 is a highly integrated, low power and fast boot up camera video processor aimed at battery-operated, smart home monitoring camera applications. The OV798 reduces system integration cost with more embedded image processing functions, as well as more embedded peripherals. It also supports various types of DDR SDRAM in order to accommodate power/speed requirements for different applications. The OV798 runs efficiently and consumes low power. A sophisticated boot up mechanism wakes up the OV798 quickly and starts recording video once it is triggered.

The OV798 supports three camera interfaces. It supports a MIPI receiver, a dedicated DVP input port, and a shared DVP input port. The MIPI receiver can be configured as four single-lane receivers, two dual-lane receivers, or one 4-lane receiver.

The OV798 has an embedded advanced image signal processor (ISP) that supports 1080p full HD video or still pictures of up to 16 megapixels. In addition to RGB raw image sensors, the ISP also supports RGB-Ir and HDR image sensors.

The OV798 implements an advanced video engine to achieve high performance video recording at up to 1080p resolution. The engine is capable of recording dual video streams of up to one 1080p video stream and one 720p video stream. Along with an embedded audio engine and depending on audio formats, the OV798 also records and decodes the audio stream.

The OV798 supports a 2-lane MIPI transmitter, DVP output, or BT1120 output.

The OV798 combines various parallel and serial peripheral interfaces including a storage card interface, serial interface, serial audio interface, SCCB interface, UART interface, DDR-SDRAM interface, and USB device and host interfaces with embedded PHY.

Find out more at www.ovt.com.

Applications

- Battery Doorbell
- Battery IPC
- Battery Home Automation Cameras

OV798

Ordering Information

- OV00798-B56G-1B
  (lead-free, 256-pin BGA)
- OV00798-U96G-2B
  (lead-free, 196-pin BGA)

Product Features

- general features
  - highly integrated low power and fast boot up video processor

- camera interfaces
  - MIPI one 4-lane, two 2-lane or four 1-lane receiver
  - 10-bit RAW RGB or 8-bit YUV DVP input
  - supports up to 16 Mpixel image sensor
  - SCCB master to access image sensor

- image signal processor
  - dual sensor 10-bit raw to YUV processing
  - adjustable AEC/AGC, AWB and auto focus
  - color correction/adjustment, gamma correction and contrast adjustment
  - digital effects
  - 16x16 zone lens shading correction and online color shading correction
  - lens distortion and prospective correction
  - defective pixel correction
  - mirror, flip and rotation
  - supports up to 4X digital zoom
  - 3D/2D de-noise filter
  - RGB-Ir processing
  - HDR processing

- video engine
  - supports single video recording with a maximum resolution of up to 1080p (1920x1080)
  - supports dual video stream recording with one 1080p (1920x1080) stream and one 720p (1280x720) stream
  - rate control to support various and constant bit rates
  - flexible motion detection with 8 windows of ROI

- still picture
  - supports still picture capture up to 16MP
  - supports still picture compression

- storage interfaces
  - storage I/O peripheral interface
  - NAND flash interface

- USB host
  - USB2.0 HS/FS host controller

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

- audio CODEC and audio engine
  - built-in 16-bit mono audio ADC and 20-bit mono audio DAC
  - supports external audio CODEC through two audio serial interfaces for full duplex audio functions
  - embedded audio engine for audio recording and playback
  - supports various audio formats

- security engine
  - supports AES/DES/3DES encryption/ decryption

- display interface
  - supports MIPI two-lane transmitter up to 1080p
  - supports 8-bit or 16-bit DVP output
  - supports HDMI and BT1120 digital output
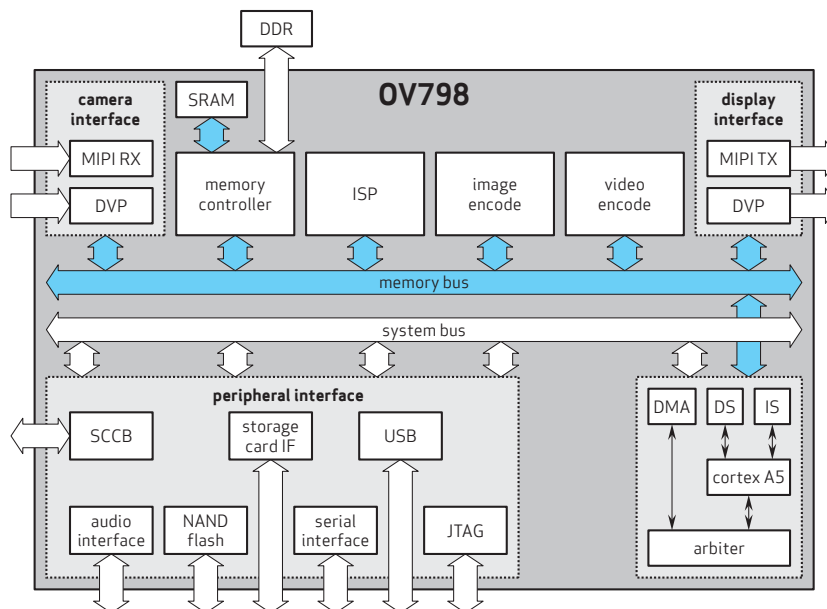 - supports on-screen-display (OSD) and scaling functions

Product Features (continued)

- embedded dual microcontrollers
  - main ARM® Cortex® A5 MCU
  - supports 32 kB instruction cache and 32 kB data cache
  - secondary 32-bit RISC MCU
  - supports 8 kB instruction cache and 8 kB data cache

- DDR-SDRAM controller
  - supports DDR2/LPDDR2 16 bits wide
  - supports DDR3 16 bits wide
  - built-in DDR PHY which supports various internal DDR memories

- general purpose I/O (GPIO)
  - flexible GPIO capability for most of the I/O pins
  - 12 dedicated GPIOs equipped with interrupt capabilities

- miscellaneous
  - dedicated JTAG interface
  - embedded power switches to control power domains
  - embedded PLLs
  - embedded USB PHY

Product Specifications

- power supply:
  - **core:** 1.1V
  - **analog:** 2.5V/3.3V
  - **DDR I/O:** 1.2V (LPDDR2)
  - **I/O:** 1.8V/3.3V
  - **PLL:** 1.8V

- temperature range:
  - commercial grade operational temperature: -30°C to +85°C

- package dimensions: 11 mm x 11 mm

Functional Block Diagram