

OV683 bridge chip product brief



available in
a lead-free
package

3-Channel Stand Alone Bridge Chip for Multi-Camera Applications

OmniVision's OV683 companion chip is a multi-sensor bridge solution that integrates images from three sensors into a single data stream. The companion chip has two 2-lane MIPI receivers and one 4-lane MIPI receiver with two built-in image signal processors (ISP).

The OV683 can support up to two 5-megapixel sensors and a 21-megapixel sensor, with lower-resolution sensors using the companion chip's two built-in ISPs and the higher-resolution sensor bypassing the processor

through a four-lane MIPI receiver. The companion chip can output a maximum resolution of 23 megapixels at 15 frames per second (fps), or one 8-megapixel video stream with two 1080p high definition (HD) streams at 30 fps.

Find out more at www.ovt.com.



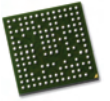
Applications

- Stand Alone 3D Bridge Chip for HD Sensors

Product Features

- interfaces
 - two 2-lane MIPI receiver for video input
 - one of the MIPI receivers can be divided into dual 1-lane MIPI receivers
 - one 4-lane MIPI receiver for video input
 - one 4-lane MIPI transmitter for video output
 - up to 1 MHz SCCB with 13 MHz - 26 MHz input clock
 - two sets of SCCB master
 - one set of SCCB master and slave
 - four sensor frame rate control pin
 - five general purpose IO (GPIO) pins
 - UART and SPI interfaces
- on-chip PLLs
 - system PLL - input clock frequency ranges from 13 MHz to 26 MHz
 - MIPI speed - 5x or 10x of system clock for RAW, 4x or 8x of system clock for YUV
- image signal processor (ISP)
 - AEC/AGC/AWB
 - two ISPs, one for each input video stream
 - 2592 x 1944 max resolution
 - max frame rate:
 - 24 fps at 5MP
 - 30 fps at 4MP
 - 60 fps at 1080p
 - 120 fps at 720p
 - lens shading correction (LENC)
 - auto exposure and gain control
 - auto white balance
 - defect pixel correction
 - auto contrast enhancement
 - gamma correction
 - YCbCr422 process
- SCCB
 - two sets of SCCB masters to control multiple sensors
 - one SCCB master/slave to take the commands from host controller
 - 7-bit SCCB slave device ID is fixed to 0x44 (0x88 for write, and 0x89 for read)
 - 7-bit SCCB slave device ID is fixed to 0x42 (0x84 for write, and 0x85 for read)
 - supports SCCB clock 100 kHz and 400 kHz and 1 MHz
- data format
 - input: RAW 8/10/12-bit, YUV422
 - output: RAW 8/10/12-bit, YUV422
- microcontroller
 - 32-bit microcontroller running at the system clock
 - 64 KByte program memory, 32 KB ROM
- power supply
 - 1.8V for IO voltage (e.g., PADVDD18), 1.8V for analog voltage (e.g., M*AVDD)
 - internal regulator generates 1.2V C*VDD12 from PADVDD18 for the digital core circuit
 - hardware standby mode initiated by pulling PWDN high, whole system halts and input clock is gated
 - software standby mode initiated by register

OV683



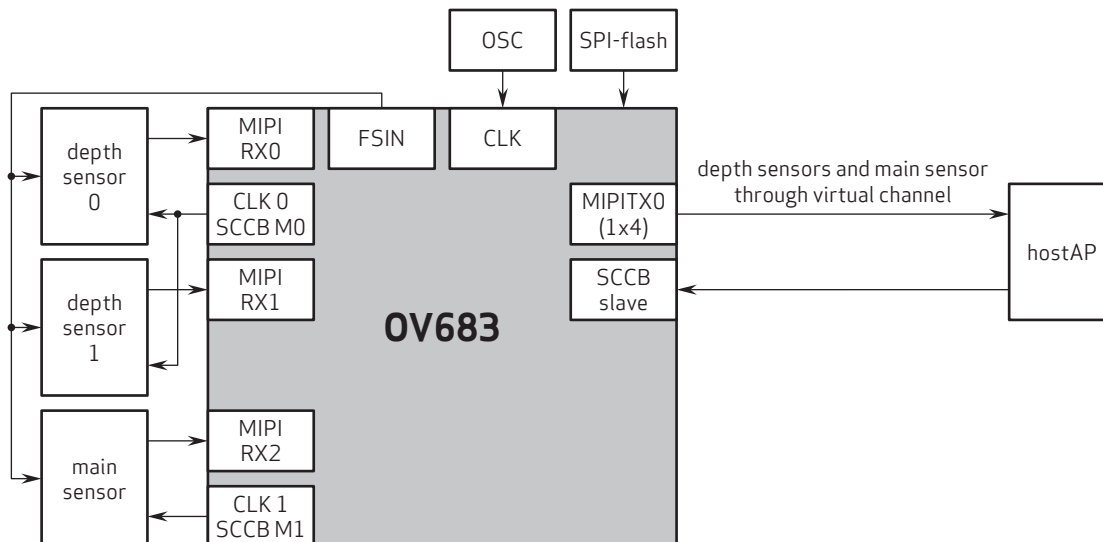
Ordering Information

- OV00683-B33G-Z
(lead-free, 133-pin BGA)

Product Specifications

- power supply:
 - core: 1.2V
 - analog: 1.8V
 - I/O: 1.8V
- output formats:
 - 8/10-bit RAW RGB data
 - YUV422 data
- input clock frequency: 6 - 27 MHz
- maximum image transfer rate: 120 fps
- temperature range:
 - operating: -30°C to +70°C junction temperature
- package dimensions: 7 mm x 7 mm

Functional Block Diagram



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