Car Camera Bus Receiver with MIPI CSI-2 or Parallel Video Output

Data Sheet

ADV7382/ADV7383

FEATURES

- Car camera bus (C²B) receiver capable of receiving video data and bidirectional control data over a differential pair or single-ended cable
- The ADV7382 features a mobile industry processor interface (MIPI) camera serial interface-2 (CSI-2) transmitter supporting
  - 2-lane operation at up to 1 Gbps per lane
  - 1-lane operation at up to 1 Gbps
- The ADV7383 parallel video output formats supported include
  - 8-bit and 10-bit interleaved Y/C data up to 148.5 MHz
  - 2 × 8-bit separate Y/C data up to 74.25 MHz
  - Embedded (start of active video (SAV)/end of active video (EAV) codes), separate horizontal sync/vertical sync/data enable (HS/VS/DE), or image signal processor (ISP) line/frame valid type external timing signals
- HD video formats supported up to 2 megapixels at 30 Hz or 1 megapixel at 60 Hz
- Bidirectional control channel embedded in the C²B link for control and status data between the C²B receiver and the C²B transmitter
  - Enables remote configuration of the C²B transmitter
- Bidirectional GPIO with either local or remote interfacing possibilities
- On-chip high resolution, high speed analog-to-digital converter (ADC), buffer and anti-aliasing filter blocks for video and control channel path
- Transmission of frame count data from ISP to enable the back-end electronic camera unit (ECU) or the head unit (HU) to detect stuck or skipped frames
- Video test pattern generator for simplified system testing
- Cable equalizer capable of compensating for cable and connector insertion loss, equivalent to a 30 m twisted pair cable
- On-chip echo cancellation scheme to prevent visual impact caused by impedance mismatch between cables and connectors
- Protection from and diagnosis of high voltages encountered during short to battery fault condition
- Tested to industry standards for automotive electromagnetic compatibility (EMC), electromagnetic interference (EMI), and electrostatic discharge (ESD) robustness
- General
  - 2-wire serial interface (I²C compatible) for configuration of the C²B receiver and for communication with a remote C²B transmitter and image signal processors
  - Connected I²C master must support clock stretching to support remote I²C communication over the C²B link
  - –40°C to +105°C temperature range
  - 48-lead lead frame chip scale package (LFCSP)
  - AEC-Q100 qualified for automotive applications

APPLICATIONS

- Automotive infotainment HUs
- Automotive camera ECUs

SIMPLIFIED FUNCTIONAL BLOCK DIAGRAM

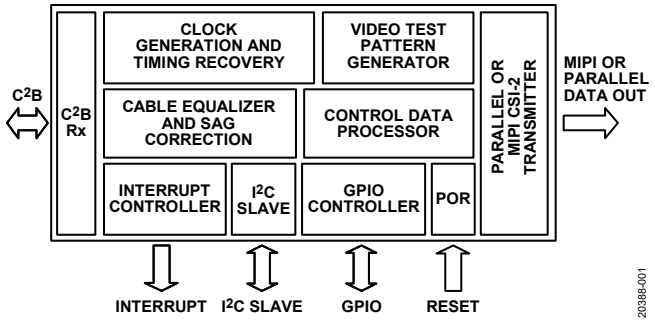

Figure 1.

Complete technical specifications are available for the C²B transmitters and receivers. Contact c2b_web_support@analog.com to complete the nondisclosure agreement (NDA) required to receive additional product information.

C²B has patents pending.

Rev. Sp0 Document Feedback

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NOTES

I²C refers to a communications protocol originally developed by Philips Semiconductors (now NXP Semiconductors).

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