

Car Camera Bus (C²B) Quad Receiver with MIPI CSI-2 Video Output

FEATURES

- ▶ C²B quadruple (quad) receiver capable of interfacing to incoming video data and bidirectional control data on unshielded twisted pair (UTP) cables
- ▶ MIPI CSI-2 transmitter:
 - ▶ 1-lane, 2-lanes, or 4-lanes running at up to 1.5 Gbps per lane
 - ▶ Up to four concurrent streams aggregated onto a single MIPI port using Virtual Channel Identifiers
- ▶ 8/10-bit YCbCr HD formats
- ▶ Video resolutions 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
- ▶ Remote configuration of the C²B transmitter and its connected devices
- ▶ I²C broadcast mode to configure up to four camera systems simultaneously to reduce boot-up time
- ▶ Four On-chip high-resolution, high-speed ADCs, and anti-aliasing filter blocks for video and control channel path
- ▶ Eight bidirectional general-purpose inputs/outputs (GPIOs) with capability to broadcast from inputs and aggregate to outputs
- ▶ Interrupt events reception from C²B transmitter or its connected devices, and aggregation to on-chip events to drive an interrupt output flag
- ▶ Test pattern generator for ease of system testing
- ▶ Protection from and diagnosis of high voltages encountered during short-to-battery fault condition

- ▶ Cable equalizer capable of compensating for cable and connector insertion loss, equivalent to 30 m twisted pair cable
- ▶ On-chip echo cancellation scheme to prevent visual impact caused by impedance mismatch between cables and connectors
- ▶ Tested to automotive industry standards for electromagnetic compatibility (EMC), electromagnetic interference (EMI), and electrostatic discharge (ESD) robustness
- ▶ 2-wire serial interface (I²C-compatible) for configuration of the quad C²B receiver and for communication with remote C²B transmitters, image signal processors (ISPs), and image sensors
- ▶ Connected I²C master must support clock stretching to support remote I²C communication over the C²B links
- ▶ -40°C to +125°C junction temperature range
- ▶ 9 mm x 9 mm 100-ball BGA package
- ▶ AEC-Q100 qualified for automotive applications

APPLICATIONS

- ▶ Automotive
 - ▶ Infotainment head unit (HU)
 - ▶ Surround view monitoring (SVM)
 - ▶ Rear view camera system (RVC)
 - ▶ Electronic control unit (ECU)
 - ▶ E-Mirror system
 - ▶ Driver and occupant monitoring system
 - ▶ Drive recording systems

SIMPLIFIED FUNCTIONAL BLOCK DIAGRAM

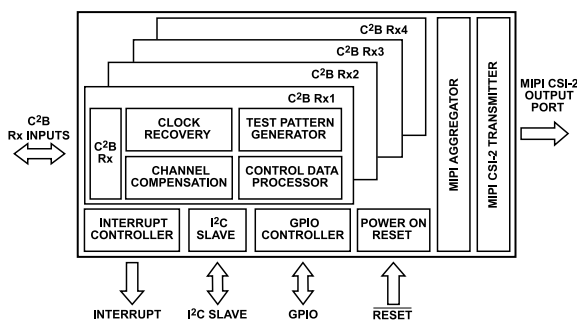


Figure 1. Simplified Functional Block Diagram

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.

NOTES