

TI Designs: TIDA-00162

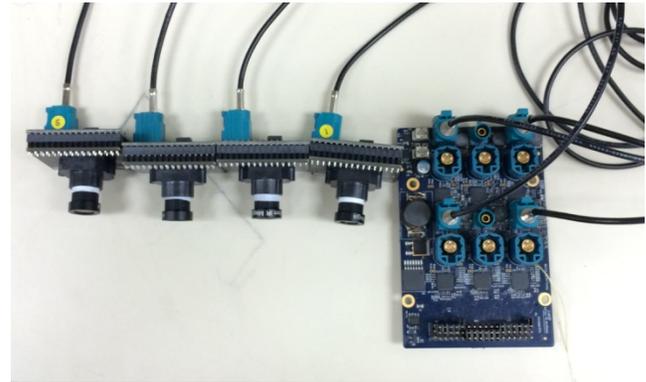
Surround View System for Automotive Applications



System Description

TIDA-00162 is a complete surround view system for automotive applications. The reference design includes four 1 Mp cameras (OmniVision OV10635), four Serializer+Power boards and a daughter board with 6 Deserializers+Power. A convenient FMC connector is available on the daughter board to connect the reference design to a FPGA or MCU board for video processing. The benefit of using DS90UB913A-Q1 serializer and DS90UB914A-Q1 deserializer is that it interfaces seamlessly with OmniVision's camera module, allows you to transmit high speed data, bidirectional control and power over a single coaxial cable.

Design Photo



Featured Applications

- Surround View System

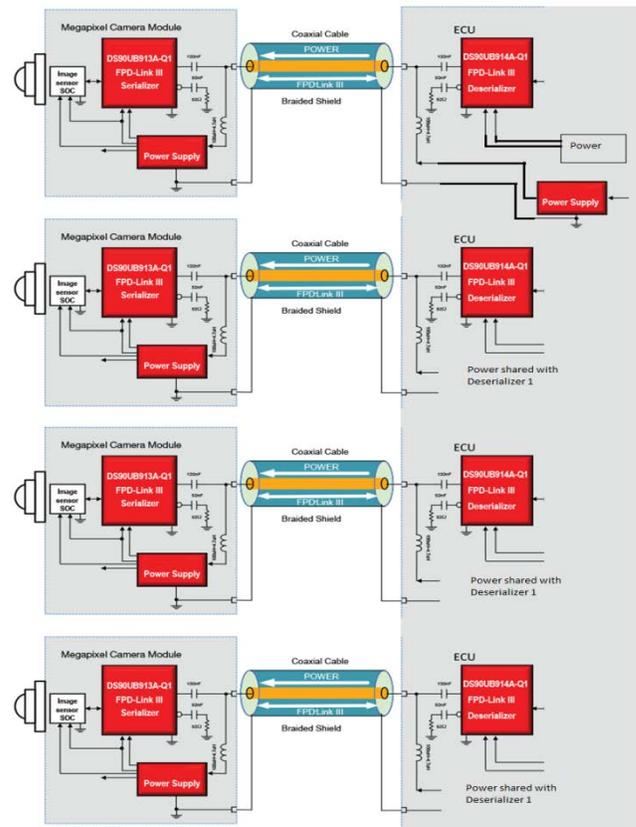
Design Resources

- [DS90U913A-Q1](#) Product Folder
- [EVM User's Guide](#) Document
- [DS90UB914A-Q1](#) Product Folder
- [EVM User's Guide](#) Document

Design Features

- Supports up to 6 cameras
- Bi-Directional Control Channel supporting GPIO and I2C
- Supports TFT LCD displays up to 720p x 60Hz
- Adaptive Equalizer Auto Calibrates for cable length, aging, and over temperature
- Diagnostic Built In Self-Test (BIST) and Pattern Generation
- Power for the camera over the same cable

Block Diagram



Jump start system design and speed time to market

Comprehensive designs include schematics or block diagrams, BOMs, design files and test reports by experts with deep system and product knowledge. Designs span TI's portfolio of analog, embedded processor and connectivity products and supports a board range of applications including industrial, automotive, medical, consumer, and more. To explore the designs, go to <http://www.ti.com/tidesigns>

Surround View System for Automotive Applications



Associated Part Numbers

<u>Part Number</u>	<u>Part Description</u>	<u>EVM Link</u>
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Design Overview:

The Surround View System is a development add-on module to add surround view capability to any of a variety of video processor systems such as the TDA2x (Vision 28) ADAS Application Processor, or an FPGA. The system consists of four cameras each of which receives control information and power through a coax cable, and uses the same cable to return the video information to a receiver card. The receiver card will support up to six cameras, and it both provides power to the cameras and an interface to the processor through an FPGA Mezzanine Connector (FMC). The links between the Surround View Receiver Card and the cameras are FPD-III links.

1. What's needed:

- a. Four 'MiniSer' Serializer cards
- b. Four Omnivision OV10635 Prototyping modules (OV10635-EAAE-AA0A, not included)
- c. One 'MultiDes' Receiver card
- d. Four FAKRA cables
- e. One Processor Card (not included)

2. Configuration:

- a. The board will be configured to the "4 Channels, 12b data" position – configuration is done via the CN2, CN3 and CN4 headers which should be configured as shown below:

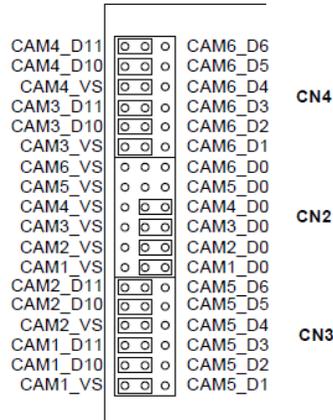


Figure 1 Header configuration for 4 camera, 12 bits per camera



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- b. Plug the four OV10635 Prototyping modules into the four 'MiniSer' serializer cards to create four camera modules
- c. Connect the four camera modules to channels 1,2,5 and 6 on the Multi Des board using the FAKRA cables. Channels are identified below:

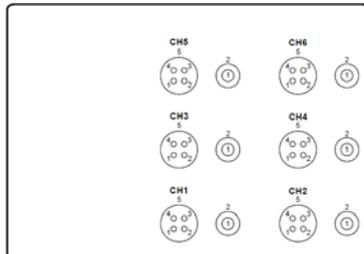


Figure 2 Channel Locations on MultiDes board

- d. Plug the MultiDes board into the processor card using the FMC connector
- e. Load appropriate firmware on the processor card and verify operation according to the firmware manual.

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