

WVGA digital video SerDes for automotive TFT LCD Displays w/ OpenLDI interface



System Description

The design is a high speed serial video interface to connect a remote automotive WVGA TFT LCD display with OpenLDI (LVDS) Interface to a video processing system. It uses TI's FPD-Link II SerDes technology to transmit uncompressed video data over shielded twisted pair or Coax cable.

Application examples are rear seat entertainment systems, automotive clusters, and Head Unit Display.

Featured Applications

- Rear Seat Entertainment systems
- Automotive Clusters
- HUD Display
- Navigation Display

Design Resources

[DS99R421-Q1](#)

Product Folder

[EVM User's Guide](#)

Document

[DS90UR124-Q1](#)

Product Folder

Design Features

- Support WVGA x 60 data rates
- Direct Connect to Displays supporting the OpenLDI Standard (LVDS)
- Built In Self-Test (BIST) ASIL B Applications

Design Photo



Block Diagram

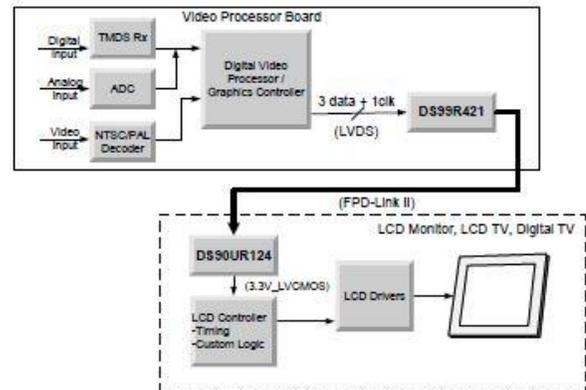


Figure 1b. Typical SERDES System Diagram



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>

TI Designs: TIDA-00136

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Associated Part Numbers

<u>Part Number</u>	<u>Part Description</u>	<u>EVM Link</u>
DS99R421-Q1	5-43 MHz FPD-Link LVDS (3 Data + 1 Clk) to FPD-Link II LVDS (Embedded Clk DC-Balanced) Conv	EVM User's Guide
DS90UR124-Q1	5-43MHz DC-Balanced 24-Bit FPD-Link II Deserializer	N/A

Design Considerations:

Connecting a remote display to e.g. an infotainment system requires data lines with sufficient bandwidth and the capability to drive multiple meters of cable in some cases. With fewer wires between the physical interface of the host and the display, FPD-Link II technology is an ideal, cost optimized solution for high speed, low power and low EMI (spread spectrum generation and low voltage differential signal) The serial bus scheme greatly eases system design by eliminating skew problems between clock and data.

Quick Start Guide

What's Needed:

1. DS99R421Q1-EVK and DS90UR124-Q1
2. Appropriate serializer and deserializer
3. 5V power supply

Before the system is powered up, please make sure all hardware is configured properly. Check that all jumpers and headers are connected appropriately. For a detailed description of configurations, see EVM user's guide.

1. A two (2) meter high speed USB 2.0 cable has been included in the kit. Connect the 4-pin USB A side of cable harness to the DS99R421 board and the other side the 5-pin mini USB jack to the DS90UR124 deserializer board. This completes the FPD-Link II interface connection.
NOTE: The DS99R421 and DS90C124 are NOT USB compliant and should not be plugged into a USB device nor should a USB device be plugged into the evaluation boards.
2. Jumpers and switches have been configured at the factory; they should not require any changes for immediate operation of the chipset.
3. From the Video Decoder board, connect a flat cable (not supplied) to the translator board and connect another flat cable (not supplied) from the De-serializer board to the panel.
4. Power for the Tx and Rx boards must be supplied externally through Power Jack (VDD). Grounds for both boards are connected through Power Jack (VSS)



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