NS6162 Dual MIPI DSI to Dual 6.4Gbps HSMT Automotive Serializer

Introduction

The NS6162 serializer chip is compliant to Automotive Wired High-Speed Media Transmission (HSMT) standard. Pairing with a compatible HSMT deserializer, the NS6162 is used for transmission of forward video and bidirectional audio and control data. The NS6162 converts a single or dual MIPI DSI inputs to HSMT output, and transmits the output to the paired deserializer over a single or dual HSMT links. Each HSMT link operates at a data rate up to 6.4Gbps in the forward direction and 100Mbps in the backward direction. The NS6162 supports 16 meters Coaxial cable or 10 meters STP cable at 6.4Gbps. The NS6162 is AEC-Q100 Grade 2 certified with automotive temperature range of -40℃ to +105℃, and compliant with ISO 10605 and IEC 61000-4-2 ESD standards.

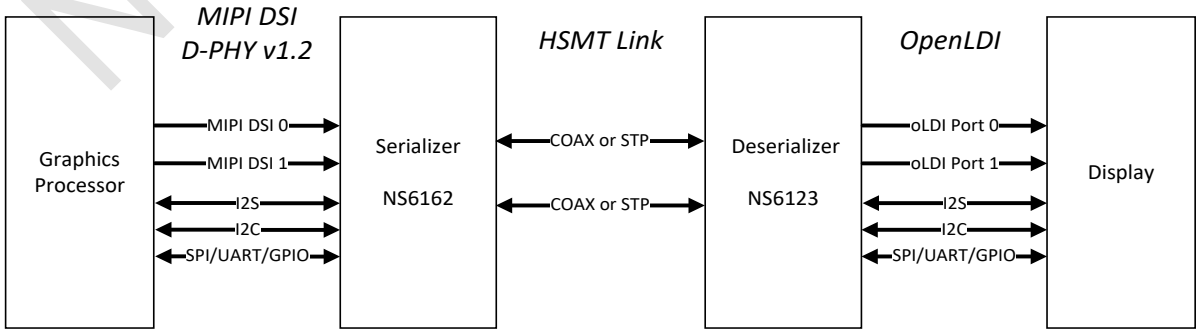
The NS6162 is ISO 26262 ASIL-B certified and supports I2C and SPI control ports, flexible GPIO with trigger mode, constant latency mode and oversample mode, tunneled UART, forward and backward audio channels, a built-in ADC, temperature sensor, and an extensive set of diagnostics for functional safety.

Applications

- High-resolution Automotive Navigation System
- Central Information Display (CID)
- Digital Instrument Clusters
- Rear Seat Entertainment (RSE)
- Head Units and HMI Modules
- Rear View and Side Mirror Displays

Features

- Single or dual MIPI DSI inputs
  - 24/30-bit RGB, 16/20/24-bit YUV422, and loosely packed 18-bit RGB and 20-bit YUV422
  - D-PHY v1.2,
  - Up to 2.5Gbps per lane and up to 4 lanes per port
  - Supports superframe splitting capability
- Two HSMT link for system and power flexibility
  - 2.0, 3.2, 4.0, or 6.4Gbps forward-link rates in NRZ mode per link
  - 100Mbps backward-link rate per link
- Robust communication in automotive environment
  - Backward channel adaptive equalization
  - RS-FEC for protection of forward video and bidirectional control data
  - Retransmission
- Digital audio with I2S and TDM interface
  - Supports forward-direction 7.1 HD audio and up to 192kHz sample rate
  - Supports backward-direction 8 channels at 48kHz sample rate or 2 channels at 192kHz sample rate
- Supports bulk and tunneling modes I2C (master up to 833Kbps, slave up to 1Mbps)
- Supports SPI (master/slave up to 50Mbps), UART (Tx/Rx), GPIO, and interrupt for touch-screen and other use cases
- Functional safety
  - AEC Q100 Grade-2 and ISO 26262 ASIL-B
  - CRC protection of control data over I2C and SPI
  - Video data error correction and retransmission
- Video watermark and test pattern generation
- Supports line fault detection and voltage monitor
- Programmble spread spectrum for EMI reduction
- 9mm x 9mm 64-pin QFN package



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