NS6429 Dual 12.8Gbps HSMT to Quad OpenLDI Automotive Deserializer

Introduction

The NS6429 deserializer chip is compliant to Automotive Wired High-Speed Media Transmission (HSMT) standard. Pairing with a compatible HSMT serializer, the NS6429 is used for transmission of forward video and bidirectional audio and control data for automotive display applications. The NS6429 receives the HSMT input over a single or dual HSMT links and converts the input to OpenLDI formatted output. Each HSMT link operates at a fixed data rate up to 12.8Gbps in the forward direction and 100Mbps in the backward direction. The NS6429 supports 15m Coaxial cable or 8m Shielded Twisted Pair (STP) cable at 12.8Gbps. The NS6429 is AEC-Q100 Grade 2 certified with automotive temperature range of -40 ℃ to +105 ℃, and meets ISO 10605 and IEC 61000-4-2 ESD requirements.

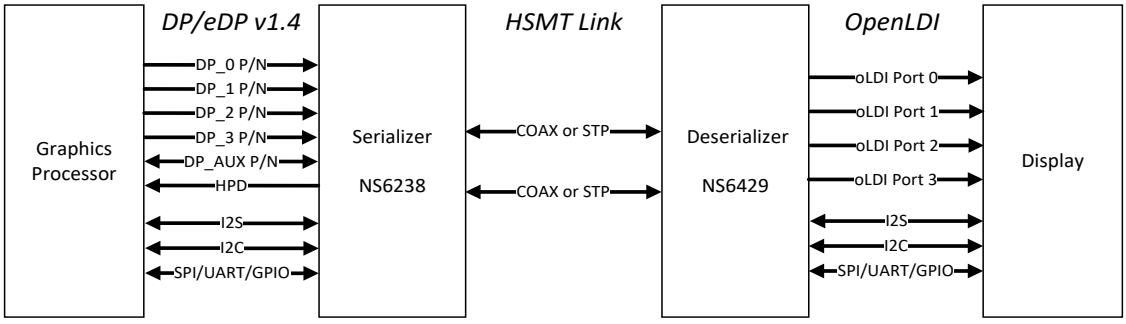
The NS6429 is ISO 26262 ASIL-B certified and supports I2C and SPI control ports, flexible GPIO with trigger mode, constant latency mode and oversample mode, tunneled UART, forward and backward audio channels, a built-in ADC, temperature sensor, and an extensive set of diagnostics for functional safety.

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-oLDI or dual-oLDI output ports
  - Configurable 18/24-bit RGB
  - Maximum pixel clock 210MHz (single-oLDI) or 420MHz (dual-oLDI)
  - Up to four single-oLDI ports or two dual-oLDI ports
  - Supports video aggregation
- Two HSMT links for system and power flexibility
  - 2.0, 3.2, 4.0, or 6.4Gbps forward-link rates (NRZ)
  - 8.0 or 12.8Gbps forward-link rates (PAM4)
  - 100Mbps backward-link rate
- Robust communication in automotive environment
  - Forward channel adaptive equalization
  - RS-FEC for protection of forward video and bidirectional control data
  - Video data error correction and retransmission
  - Advanced DSP continuously tracking changes in cable, connector, PCB and other channel characteristics over time and temperature
- 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
- AEC Q100 Grade-2 and ISO 26262 ASIL-B
- CRC protection of control-channel data (I2C and SPI)
- Supports image enhancement features
- Video watermark and test pattern generation
- Supports line fault detection and voltage monitor
- Programmble spread spectrum for EMI reduction
- 10mm x 10mm 88-pin QFN package



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