NS6133 Dual 6.4Gbps HSMT to Dual eDP Automotive Deserializer

Introduction

The NS6133 deserializer chip is compliant to Automotive Wired High-Speed Media Transmission (HSMT) standard. Pairing with a compatible HSMT serializer, the NS6133 is used for transmission of forward video and bidirectional audio and control data for automotive display applications. The NS6133 receives HSMT input over a single or dual HSMT links and converts to DP/eDP formatted output. Each HSMT link operates at a fixed data rate up to 6.4Gbps in the forward direction and 100Mbps in the backward direction. The NS6133 supports 16 meters Coaxial cable or 10 meters Shielded Twisted Pair (STP) cable at 6.4Gbps. The NS6133 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.

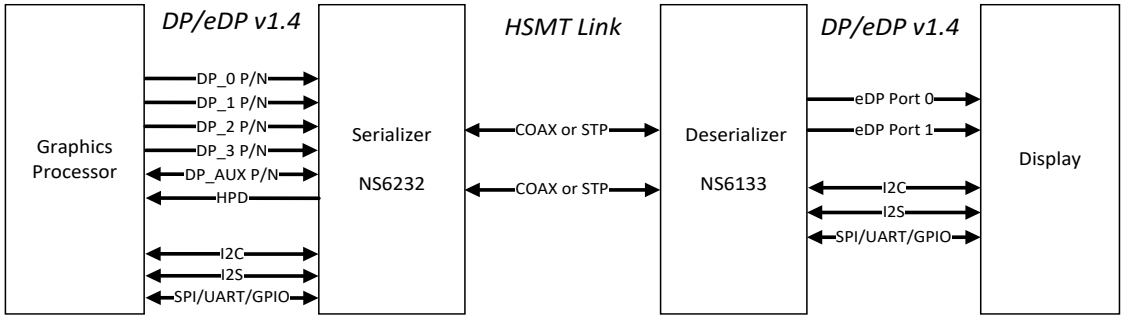
The NS6133 supports I2C and SPI control ports, flexible GPIO with trigger mode, constant latency mode and oversample mode, tunneled UART, forward and backward audio channels, a built-in ADC, temperature sensor, and an extensive set of diagnostics.

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

- Dual DisplayPort/Embedded DisplayPort output ports
  - 24/30-bit RGB, and 16/20-bit YUV422
  - DP/eDP v1.4 compliant
  - 1/2/4-lane main link with up to 5.4Gbps per lane
  - Hot Plug Detect and AUX Channel (1Mbps)
  - Supports 4K@60Hz video resolution
  - Supports video synchronization and splitting
- Two HSMT links for system and power flexibility
  - 2.0, 3.2, 4.0, or 6.4Gbps forward-link rates per link
  - 100Mbps backward-link rate per link
- 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
- CRC protection of control data over I2C and SPI
- Video watermark and test pattern generation
- Supports line fault detection and voltage monitor
- Programmble spread spectrum for EMI reduction
- 9mm x 9mm 76-pin QFN package



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