NS6232 Single DP/eDP to Dual 6.4Gbps HSMT Automotive Serializer

Introduction

The NS6232 serializer chip is compliant to Automotive Wired High-Speed Media Transmission (HSMT) standard. Pairing with a compatible HSMT deserializer, the NS6232 converts DisplayPort/eDP input to dual HSMT outputs for transmission of forward video and bidirectional audio and control data. Each HSMT link operates at a data rate up to 6.4Gbps in the forward direction and 100Mbps in the backward direction. The NS6232 supports 16 meters Coaxial cable or 10 meters STP cable at 6.4Gbps. The NS6232 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.

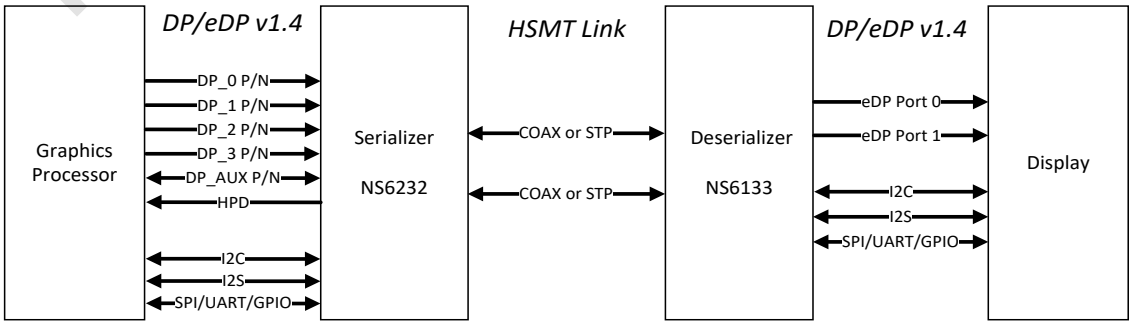
The NS6232 supports I2C and SPI control ports, flexible GPIO with trigger mode, constant latency mode and oversample mode, tunneled UART, forward and backward audio channels, a built-in ADC, temperature sensor, and an extensive set of diagnostics.

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

- Single DisplayPort input port
  - 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/lane
  - Hot Plug Dectect and AUX Channel (1Mbps)
  - Supports SST or four MST streams
  - Supports 4K@60Hz resolutions
  - Supports superframe unpacking to up to four video streams
  - Supports FEC
- Two HSMT links for system and power flexibility
  - 2.0, 3.2, 4.0, or 6.4Gbps forward-link rates per link in NRZ mode
  - 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
- 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 64-pin QFN package



NOREL Systems Ltd.

Floor 11-12, West Tower, Putian Innovation Industrial Park, No. 22 Kaihua Road, Huayuan, Tianjin, China

EDN-5344 Tel: +86 22 58668220 Fax: +86 22 58668221