NS6016 Automotive HSMT Serializer

Introduction

The NS6016 Serializer chip is compliant to Automotive Wired High-Speed Media Transmission (HSMT) standard. The NS6016 converts MIPI CSI-2 to one HSMT link output for transmission of video and bi-directional control data. HSMT link operates at a fixed data rate of 2.0Gbps in the forward direction, and 100Mbps in the backward direction. The NS6016 supports Power-over-Cable (PoC) operation over 22 meters Coaxial cable or 12 meters Shielded Twisted Pair (STP) cable, with multiple inline connectors. The NS6016 is ISO 26262 ASIL-B and AEC-Q100 Grade 2 certified with automotive temperature range of -40℃ to +105℃.

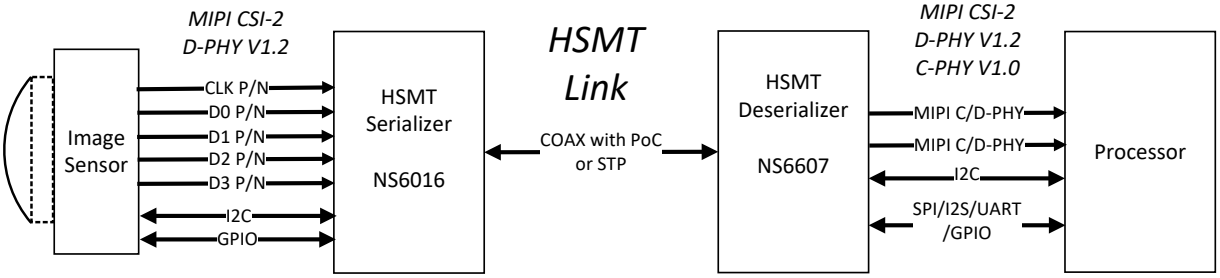
The NS6016 includes ISO 26262 ASIL-B certified I2C and SPI control ports, flexible GPIO with trigger mode, constant latency mode and oversample mode, tunneled UART, forward and backward audio channels, a built-in ADC, temperature sensor, and an extensive set of diagnostics for functional safety.

Applications

- High-Definition 3MP Camera Systems
- Advanced Driver Assistance Systems (ADAS)
- Front Vision Camera Systems (FVC)
- Surround View Systems (SVS)
- Driver Monitor Systems (DMS)
- Automatic Parking Assist (APA)

Features

- Full duplex over a single wire
  - 2.0Gbps forward-link rate
  - 100Mbps backward link rate allows small Power-over-Cable inductor
- Robust communication in automotive environment
  - RS-FEC for protection of forward video and control-channel data
  - Physical layer retransmission
- High performance backward receiver
  - Backward channel adaptive equalization
  - Backward channel eye timing margin monitor for continuous link margin diagnosis
  - RS-FEC for protection of backward control-channel data
- Four-lane MIPI CSI-2 input
  - RAW8/10/12/14/16/20/24, RGB888, YUV422 8/10-bit
  - 16 virtual channels
  - 80Mbps-2.5Gbps/lane D-PHY V1.2
- Supports bulk and tunneling modes I2C (master up to 833Kbps, slave up to 1Mbps)
- Supports 2x I2C, 2x SPI, 9x GPIO, 2x UART, 2x I2S
- Functional safety
  - ISO 26262 ASIL-B certified
  - CRC protection of control-channel (I2C, SPI)
  - Video data error correction and retransmission
- Video watermark insertion and detection
- Video test pattern generation
- Advanced diagnostics
  - Line fault detection
  - Supply voltage monitor
- Generates reference clock for image sensor synchronizing to back channel clock
- Generates frame sync singal to image sensor
- Programmable spread spectrum for EMI reduction
- 5mm x 5mm QFN package



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