

# LT9611UXC --- Product Brief

## Dual-Port MIPI DSI/CSI to HD-DVI2.0 with Audio

### 1. Features

#### ● Single/Dual-Port MIPI DSI/CSI Receiver

- Compliant with D-PHY1.2 & DSI1.3 & CSI-2 1.3
- Integrated DSC1.2 decoder (fixed 2 slice, 8bpc only, RGB 4k30 max, YCbCr4:2:2 4k60 max)
- 1/2 configurable ports
- 1 clock lane and 1/2/3/4 configurable data lanes per port
- 80Mbps~2Gbps per data lane
- Programmable receiver equalizer
- 3D support: two ports simultaneously receiving L and R frames or odd-L/even-R alternative pixels
- DSI support both burst mode and non-burst mode
- DSI support video formats:
  - DSC/CSC disabled:** Packed 16/18/24/30/36-bit RGB, Loosely Packed 18-bit RGB, Packed 16/24-bit YCbCr4:2:2, Loosely Packed 20-bit YCbCr4:2:2, Packed 12-bit YCbCr4:2:0
  - DSC disabled, CSC enabled:** Packed 16/18/24/30/36-bit RGB, Loosely Packed 18-bit RGB, Packed 16/24-bit YCbCr4:2:2, Loosely Packed 20-bit YCbCr4:2:2
  - DSC enabled, CSC disabled:** Packed 24-bit RGB, Packed 16-bit YCbCr4:2:2, Packed 12-bit YCbCr4:2:0
  - DSC/CSC enabled:** Packed 24-bit RGB, Packed 16-bit YCbCr4:2:2
- CSI support video formats:
  - DSC/CSC disabled:** RGB565/666/888, YUV422 8/10-bit, Legacy YUV420 8-bit
  - DSC disabled, CSC enabled:** RGB565/666/888, YUV422 8/10-bit
  - DSC enabled, CSC disabled:** RGB888, YUV422 8-bit, Legacy YUV420 8-bit
  - DSC/CSC enabled:** RGB888, YUV422 8-bit

#### ● Digital Audio Input

- I2S interface supporting 2-channel audio, with sample rates of 32~192 kHz and sample sizes of 16~24 bits
- SPDIF interface supporting PCM, Dolby Digital, DTS digital audio at up to 192kHz frame rate
- IEC60958 or IEC61937 compatible

#### ● HD-DVI2.0 Transmitter

- Compliant with HD-DVI2.0b, HD-DVI1.4 and DVI1.0
- Compliant with HDCP2.2 and HDCP1.4
- Data rate up to 6Gbps
- On-die back termination
- Programmable transmitter swing and pre-emphasis
- Support 4k@60Hz
- Supported 3D formats: side-by-side(full)
- Supported video formats:
  - DSC/CSC disabled:** 24/30/36-bit RGB, 16/20/24-bit YCbCr4:2:2, 8-bit YCbCr4:2:0
  - DSC disabled, CSC enabled:** 24-bit RGB/YCbCr4:4:4, 16-bit YCbCr4:2:2
  - DSC enabled, CSC disabled:** 24-bit RGB, 16-bit YCbCr4:2:2, 8-bit YCbCr4:2:0
  - DSC/CSC enabled:** 24-bit RGB/YCbCr4:4:4, 16-bit YCbCr4:2:2

#### ● Miscellaneous

- CSC: RGB <-> YUV444 <-> YUV422, support 8-bit only
- Integrated CES (Consumer Electronics Service) controller (no command parsing)
- External oscillator
- Integrated microprocessor
- Embedded SPI flash for firmware and HDCP keys
- GPIOs for system controls
- Integrated 100/400kHz I2C slave
- Firmware update through SPI or I2C interface

### 2. General Description

The LT9611UXC is a high performance MIPI DSI/CSI to

HD-DVI2.0 converter.

The MIPI DSI/CSI input features configurable single-port or dual-port with 1 high-speed clock lane, and 1~4 high-speed data lanes operating at maximum 2Gbps/lane, which can support a total bandwidth of up to 16Gbps. LT9611UXC supports burst mode DSI video data transferring, also supports flexible video data mapping path. Integrated DSC decoder implements up to 1:3 visually lossless decompression which reduces bandwidth requirement for UHD video transport, also power consumption and EMI.

The HD-DVI2.0 output supports data rate up to 6Gbps which provides sufficient bandwidth for 4k@60Hz video. Also, HDCP2.2 is supported for data encryption.

Two digital audio input interfaces are available, I2S and SPDIF. The I2S interface supports 2-ch LPCM and the SPDIF interface supports 2-ch LPCM or compressed audio, both at maximum 192kHz sample rate.

The device is capable of automatic operation which is enabled by an integrated microprocessor that uses an embedded SPI flash for firmware storage. System control is also available through the configuration I2C slave interface.

### 3. Applications

- STB
- PTV Box

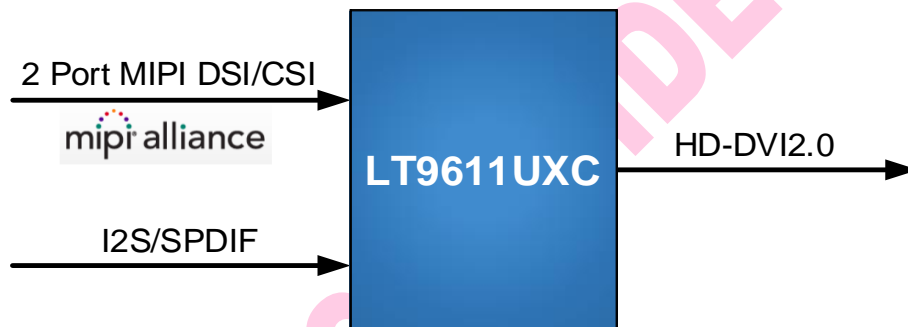


Figure 3.1 Application Diagram

### 4. Ordering Information

Table 4.1 Ordering Information

Part Number	Product Version	Product Status	Operating Temperature Range	Package	Packing Method	MPQ
LT9611UXC	U4	MP	-40°C to +85°C	QFN64 (7.5*7.5)	Tray	2600pcs
LT9611UXC-AU	U4	MP	-40°C to +85°C	QFN64 (7.5*7.5)	Tray	2600pcs

MP: Mass Production.

**Note:** The suffix –AU denotes that it is an automotive grade device which is qualified by AEC-Q100 grade 3 testing.

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