

# LT6911UXC --- Product Brief

## HDMI2.0 to Dual-Port MIPI DSI/CSI with Audio

### Features

#### ● HDMI2.0 Receiver

- Compliant with HDMI2.0b, HDMI1.4 and DV11.0
- Compliant with HDCP2.2 and HDCP1.4
- Data rate up to 6Gbps
- Adaptive receiver equalization
- AC-couple capable
- Support channel swap(arbitrarily) and polarity inversion(independent)
- Support 4k@60Hz
- Supported 3D formats: frame packing(progressive), side-by-side(half/full), top-and-bottom, line alternative
- Supported video formats:  
 CSC/DSC disabled: 24/30/36-bit RGB, 16/20/24-bit YCbCr4:2:2, 8-bit YCbCr4:2:0  
 CSC disabled, DSC enabled: 24-bit RGB, 16/20/24-bit YCbCr4:2:2, 8-bit YCbCr4:2:0  
 CSC enabled, DSC disabled: 24-bit RGB/YCbCr4:4:4, 16/20/24-bit YCbCr4:2:2  
 CSC/DSC enabled: 24-bit RGB/YCbCr4:4:4, 16/20/24-bit YCbCr4:2:2
- HDR support
- Support TMDS descrambling for EMI/RFI reduction
- Support SCDC
- 5V tolerance DDC/HPD I/Os
- Integrated EDID shadow

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

- Compliant with DCS1.1, D-PHY1.2 & DSI1.3 & CSI-2 1.3
- Integrated DSC1.2 encoder
- 1/2 configurable ports
- 1 clock lane and 1/2/3/4 configurable data lanes per port
- 80Mbps~2Gbps per data lane

- Programmable transmitter swing and pre-emphasis
- Support lane swap(arbitrarily) and polarity inversion(independent)
- 3D support: two ports simultaneously transmitting L and R frames or odd-L/even-R alternative pixels
- DSI support both burst mode and non-burst mode
- DSI support video formats:  
 CSC/DSC 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  
 CSC disabled, DSC enabled: Packed 24-bit RGB, Packed 16-bit YCbCr4:2:2, Packed 12-bit YCbCr4:2:0  
 CSC enabled, DSC disabled: Packed 16/18/24-bit RGB, Loosely Packed 18-bit RGB, Packed 16-bit YCbCr4:2:2  
 CSC/DSC enabled: Packed 24-bit RGB, Packed 16-bit YCbCr4:2:2
- CSI support video formats:  
 CSC/DSC disabled: RGB565/666/888, YUV422 8/10-bit, Legacy YUV420 8-bit  
 CSC disabled, DSC enabled: RGB888, YUV422 8-bit, Legacy YUV420 8-bit  
 CSC enabled, DSC disabled: RGB565/666/888, YUV422 8-bit  
 CSC/DSC enabled: RGB888, YUV422 8-bit
- CSI support interlaced mode
- Maximum 64 pixels overlap for each half
- Video stream copy mode for each port

#### ● Digital Audio Output

- 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

**● Miscellaneous**

- CSC: RGB <-> YUV444 <-> YUV422
- External oscillator
- Integrated microprocessor
- Embedded SPI flash for firmware and HDCP keys
- GPIOs for system controls
- Integrated 100/400kHz I2C slave
- Firmware update through I2C interface
- Power supply: 3.3V for I/O and 1.2V for core
- ESD 4kV HBM
- Temperature Range: -40°C ~ +85°C
- Package: QFN64(7.5mm\*7.5mm)
- Pin compatible with LT6911C

## Description

The LT6911UXC is a high performance HDMI2.0 to MIPI DSI/CSI converter for VR, Smart phone, Display applications.

The HDMI2.0 input supports data rate up to 6Gbps which provides sufficient bandwidth for 4k@60Hz video.

Also HDCP2.2 is supported for data decryption.

For MIPI DSI/CSI output, LT6911UXC features configurable single-port or dual-port MIPI DSI/CSI 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. LT6911UXC supports burst mode DSI video data transferring, also supports flexible video data mapping path. Integrated DSC encoder implements up to 3:1 visually lossless compression which reduces bandwidth requirement for UHD video transport, also power consumption and EMI. Two digital audio output 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.

## Applications

- Mobile system
- Display
- VR

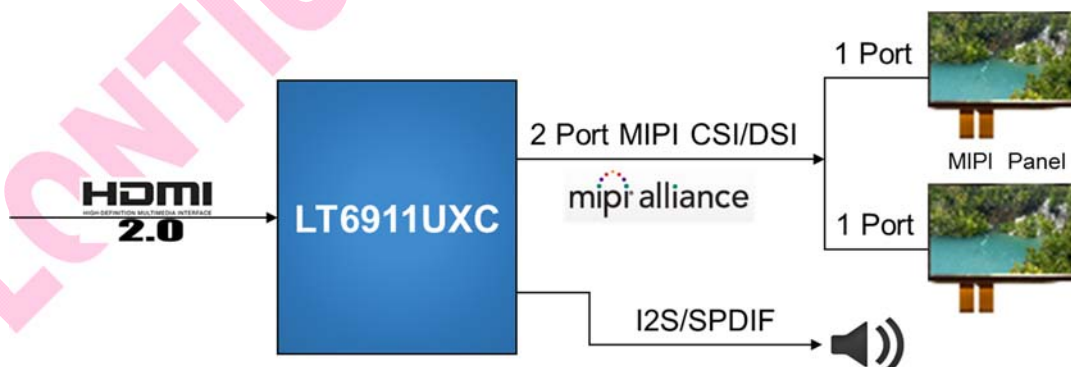


Figure1. Application Diagram

## Ordering Information

| Part Number  | Operating Temperature Range | Package         | Packing Method |
|--------------|-----------------------------|-----------------|----------------|
| LT6911UXC    | -40°C to +85°C              | QFN64 (7.5*7.5) | Tray           |
| LT6911UXC-AU | -40°C to +85°C              | QFN64 (7.5*7.5) | Tray           |

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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