

# LT6211UX --- Product Brief

## HDMI2.0 to Quad-Port LVDS & MIPI DSI/CSI with Audio

### 1. 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
- Support 4k@60Hz
- Supported 3D formats:

For HDMI -> LVDS:

Direct 3D output: frame packing(progressive)

2-way 2D L/R output: side-by-side(half/full), line alternative

For HDMI -> MIPI:

frame packing(progressive), side-by-side(half/full), top-and-bottom, line alternative

- Supported video formats:

For HDMI -> LVDS:

CSC disabled: 24-bit RGB

CSC enabled: 24-bit YCbCr4:4:4, 16/20/24-bit YCbCr4:2:2

For HDMI -> MIPI:

CSC disabled: 24/30/36-bit RGB, 16/20/24-bit YCbCr4:2:2, 8-bit YCbCr4:2:0

CSC enabled: 24-bit RGB/YCbCr4:4:4, 16/20/24-bit YCbCr4:2:2

- Integrated EDID shadow

#### ● Single/Dual/Quad-Port LVDS Transmitter

- Compatible with VESA and JEIDA standard
- 1/2/4 configurable ports
- 1 clock lane and 3/4 configurable data lanes per port
- 1.2Gbps per data lane
- Programmable transmitter swing
- 6-bit and 8-bit color depth
- 3D support: direct 3D output, 2-way 2D L/R output

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

- Compliant with DCS1.1, D-PHY1.2 & DSI1.3 & CSI-2 1.3
- 1/2/4 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
- 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 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 enabled: Packed 16/18/24-bit RGB, Loosely Packed 18-bit RGB, Packed 16-bit YCbCr4:2:2
- CSI support video formats:  
CSC disabled: RGB565/666/888, YUV422 8/10-bit, Legacy YUV420 8-bit  
CSC enabled: RGB565/666/888, YUV422 8-bit
- Maximum 64 pixels overlap for each half
- Video stream copy mode for each port

#### ● Digital Audio Output

- I2S interface supporting 8-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, support 8-bit only
- Integrated CEC 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 LT6211UX is a high performance HDMI2.0 to LVDS & MIPI converter.

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 LVDS output, LT6211UX can be configured as single-port, dual-port or quad-port LVDS with 1 high-speed clock lane, and 3~4 high-speed data lanes operating at maximum 1.2Gbps/lane, which can support a total bandwidth of up to 19.2Gbps.

For MIPI DSI/CSI output, LT6211UX features configurable single-port, dual-port or quad-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 32Gbps. LT6211UX supports burst mode DSI video data transferring.

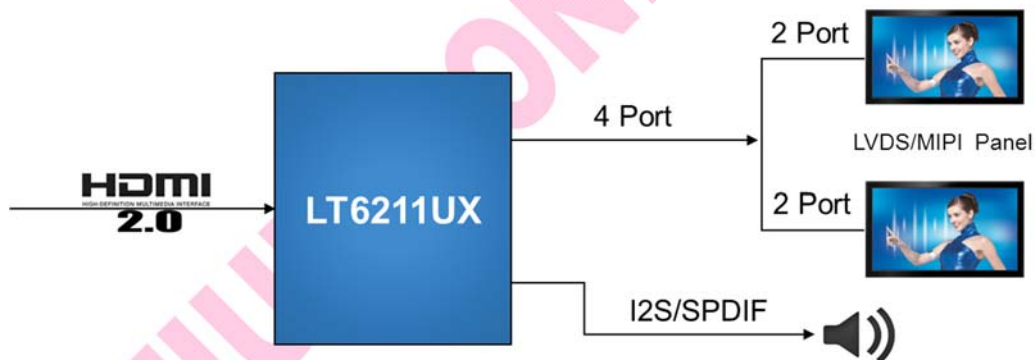
LT6211UX supports flexible video data mapping path for 2D and 3D applications.

Two digital audio output interfaces are available, I2S and SPDIF. The I2S interface supports 8-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

- Display
- VR



**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
LT6211UX	U4	MP	-40°C to +85°C	QFN128 (14*14)	Tray	1190pcs
MP: Mass Production.						

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