

# LT7911UX --- Product Brief

## Type-C/DP to Quad-port MIPI/LVDS with Audio

### 1. Features

#### ● Type-C

- Compliant with VESA DisplayPort Alt Mode on USB Type-C Standard 2.0
- DP Alt Mode support pin assignment C, D and E
- Compliant with USB power delivery specification 3.0
- Compliant with USB Type-C cable and connector specification 1.3
- Built-in dual CC controllers for charger and normal communication
- Data roles supported: DFP, UFP and DRP
- Power roles supported: source and sink
- Support USB Billboard function

#### ● DP1.4a Receiver

- Compliant with DisplayPort specification 1.4a for 1.62Gbps, 2.7Gbps, 5.4Gbps and 8.1Gbps
- Compliant with Embedded DisplayPort specification version 1.4b
- Support DisplayPort 1/2/4 lanes
- Support HDCP 1.3/2.3
- Support HDCP repeater
- Support RGB 6/8/10/12 bpc, YCbCr4:4:4/YCbCr4:2:2/YCbCr4:2:0 8/10/12 bpc
- Support up to 8K@30Hz YCbCr4:2:2 10 bpc or YCbCr4:2:0 12 bpc
- Support up to 4K@120Hz YCbCr4:2:2 10 bpc or YCbCr4:2:0 12 bpc
- Support up to 8K@60Hz DSC bitstream bypass
- Support static HDR10
- Support FEC
- Support ASSR for eDP

#### ● Four-Port MIPI® DSI/CSI Transmitter

- Compliant with D-PHY1.2 & DSI 1.3 & CSI-2 1.3 ; 1 clock lane, and 1/2/3/4 configurable data lanes, and 8

configurable data lanes only for CSI; 2.5Gbps per data lane

- Compliant with C-PHY1.0 & DSI-2 1.0 & CSI-2 2.0; 1/2/3 configurable data lanes; 5.7Gbps per data lane
- Support 1/2/4 configurable ports and only 1 port for CSI D-PHY 8lanes mode
- Support up to 8K@30Hz YUV422 8bit for CSI D-PHY 8lanes mode
- Support up to 4K@120Hz
- Support up to 8K@60Hz DSC bitstream bypass
- Support overlap mode
- DSI Support 16/20/24-bit YCbCr4:2:2, 16/18/24/30-bit RGB
- CSI Support RGB888/666/565, YUV422 8/10bit, YUV420 8bit(legacy)
- Support side by side 3D

#### ● Four-Port LVDS Transmitter

- Compatible with VESA and JEIDA standard
- Support 1/2/4 configurable ports
- 1 Clock lane and 3/4/5 configurable data lanes
- Data rate up to 1.2Gbps per data lane
- Support up to 4K@60Hz
- Support side by side 3D
- Programmable transmitter swing
- Support SSC

#### ● Digital Audio Output

- I2S interface supports up to 8-channel audio, with sample rates of 32~192 KHz and sample sizes of 16~24 bits
- SPDIF interface supports LPCM, Dolby Digital, DTS digital audio up to 192KHz frame rate
- Compliant with IEC60958 or IEC61937

#### ● DSC Decoder and Encoder

- Compliant with DSC 1.2a
- Support up to hactive 4096
- Support up to pixel clock 1.2GHz

- Support 1/2/4 slices
- Support color space RGB, YCbCr4:4:4, YCbCr4:2:2, and YCbCr4:2:0
- Support color depth 8bit and 10bit
- Support bpp precision 1 bit
- Support only constant refresh rate

● **Miscellaneous**

- Zoom scaling up and down (4K max)
- Vertical blanking interval expansion
- CSC: RGB <-> YCbCr4:4:4 <-> YCbCr4:2:2<-> YCbCr4:2:0
- Integrated 100/400KHz I2C slave
- Integrated microprocessor
- External oscillator 25MHz, +/-50ppm
- Embedded SPI flash for firmware and HDCP keys
- Embedded DRAM
- Firmware update through SPI or I2C or USB interface
- Power supply: 3.3V ,1.1V and 1.8V

## 2. General Description

The LT7911UX is a high performance Type-C/DP1.4a to MIPI or LVDS chip for VR/Display application.

HDCP RX as the upstream of HDCP repeater, can cooperate with HDCP TX of other chips to realize the repeater function.

For DP1.4a input, LT7911UX can be configured as 1/2/4 lanes. Adaptive equalization makes it suitable for long cable application and the maximum bandwidth up to 32.4Gbps.

For MIPI output, LT7911UX features configurable

single-port or dual-port or quad-port MIPI@DSI/CSI with 1 high-speed clock lane and 1~4 high-speed data lanes operating at maximum 2.5Gbps/lane with D-PHY, which can support a total bandwidth of up to 40Gbps for four port. LT7911UX also support 5.7Gbps/lane with C-PHY, which can support a total bandwidth of up to 68.4Gbps for four port.

For LVDS output, LT7911UX can be configured as single, dual or quad-port LVDS with 1 high-speed clock lane, and 3~5 high-speed data lanes, operating at maximum 1.2Gbps per lane, which can support a total bandwidth of up to 24Gbps. LT7911UX 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 192 KHz 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.

LT7911UX is fabricated in advanced CMOS process and implemented in 9mmx9mm BGA169 package.

## 3. Applications

- Mobile system
- Display
- VR
- Video conferencing

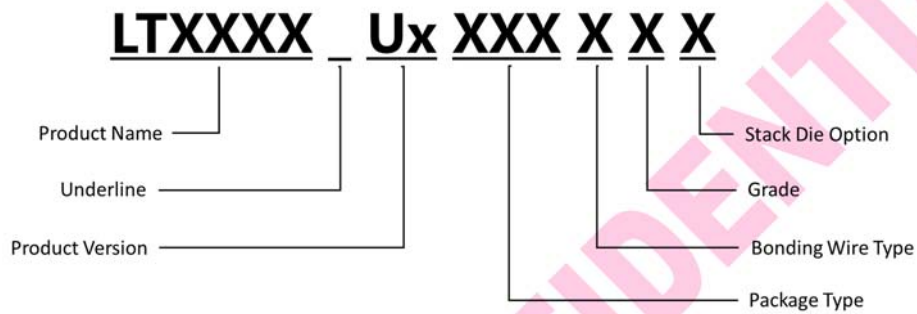


**Figure 3.1 Application Diagram**

## 4. Ordering Information

Table 4.1 Ordering Information

Product Name	Part Number	Product Status	Package	Bonding Wire	Grade	Operating Temperature Range	Stack Die Option	Packing Method	MPQ
LT7911UX	LT7911UX_U2B00AEI	MP	BGA169 (9*9)	Au	E	-40°C to +85°C	I	Tray	2600pcs
	LT7911UX_U2B04AEI								



Note: No spaces in the P/N name.

Figure 4.1 Part Number Naming Rules

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