LT8711UX --- Product Brief

Type-C/DP1.2 to HDMI2.0 Converter

1. Features

- **USB Type-C**
  - Compliant with VESA DisplayPort Alt Mode on USB Type-C Standard V1.0
  - Compliant with USB Power Delivery Specification R2.0, V1.0
  - Compatible with USB Type-C Cable and Connector Specification R1.2
  - Built-in CC controller for plug and orientation detection
  - Dual CC ports for charger and normal communication

- **DP1.2 Receiver**
  - Compliant with VESA DP1.2
  - Support 1.62/2.7/5.4Gbps
  - Support 1/2/4 lanes
  - Support SSC
  - Compliant with HDCP1.3
  - Adaptive receiver equalization for PCB, cable and connector losses
  - Support lane swap(arbitrarily) and polarity inversion(independent)

- **HDMI2.0 Transmitter**
  - Compliant with HDMI2.0, HDMI1.4 and DVI1.0
  - Compliant with HDCP2.2 and HDCP1.4
  - Data rate up to 6Gbps
  - Support UHD 4k@60Hz(RGB and YCbCr 4:4:4)
  - Support CEC
  - Programmable transmitter swing and pre-emphasis

- **Digital Audio Outputs**
  - I2S and SPDIF interface(SPDIF shared with SD0)
  - 2-channel LPCM or compressed audio
  - Sample rate up to 192kHz

- **Miscellaneous**
  - External oscillator
  - Integrated microprocessor
  - Embedded SPI flash for firmware and HDCP keys
  - Integrated 100/400kHz I2C slave
  - Firmware update through SPI or I2C interface
  - Power supply: 3.3V for I/O and 1.2V for core

2. General Description

The LT8711UX is a high performance Type-C/DP1.2 to HDMI2.0 converter, designed to connect a USB Type-C source or a DP1.2 source to an HDMI2.0 sink. The LT8711UX integrates a DP1.2 compliant receiver, and an HDMI2.0 compliant transmitter. Also, two CC controllers are included for CC communication to implement DP Alt Mode and power delivery function, one for upstream Type-C port and another for downstream port.

The DP interface comprises 4 main lanes, AUX channel, and HPD signal. The receiver supports maximum 5.4Gbps (HBR2) data rate per lane. The DP receiver incorporates HDCP 1.3 content protection scheme with embedded key for secure transmission of digital audio-video content.

The HDMI interface includes 4 TMDS clock/data pairs, DDC, and HPD signal. The HDMI transmitter is capable of supporting up to 6Gpbs data rate, quite adequate for handling video resolutions up to UHD 4k 60Hz formats. The HDMI transmitter incorporates HDCP engines which support both HDCP1.4 and HDCP2.2. With the inclusion of HDCP, the LT8711UX allows secure transmission of protected content. Embedded key is available that provides the highest level of HDCP key security.

Besides digital video output interface, the LT8711UX also provides digital audio output interfaces: I2S and SPDIF. The audio stream is extracted and recovered from DP data stream, and then routed to digital audio outputs or HDMI output. The device supports 2-channel LPCM or compressed audio 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 use of a dedicated configuration I2C slave interface.

3. Applications
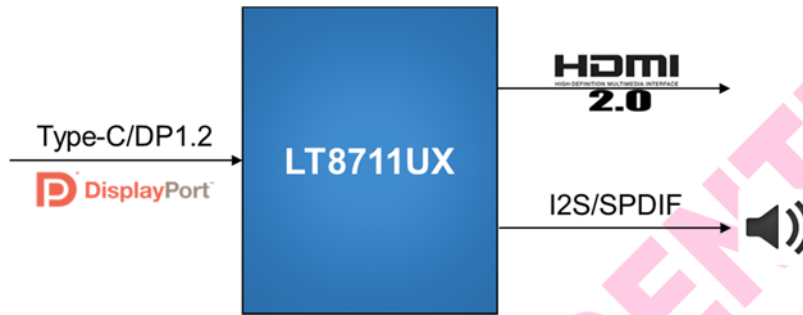
- Docking station
- Dongle

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
LT8711UX	U3	MP	-40℃ to +85℃	QFN88 (10*10)	Tray	1680pcs
LT8711UX-AU	U3	MP	-40℃ to +85℃	QFN88 (10*10)	Tray	1680pcs
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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