LT8711EH-C --- Product Brief

Type-C/DP1.2 to HD-DVI2.0 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 dual CC controllers for charger and normal communication
  - Compliant with HD-DVI 1.4b Alt Mode on USB Type-C Specification V1.0

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

- **HD-DVI2.0 Transmitter**
  - Compliant with HD-DVI2.0, HD-DVI1.4 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 TMDS scrambling for EMI/RFI reduction
  - Support ACDC (Auxiliary and Control Data Channel)
  - AC-couple capable
  - Support channel swap (arbitrarily) and polarity inversion (independent)
  - Programmable transmitter swing and pre-emphasis

  - Downstream receiver sensing
  - 5V tolerance DDC/HPD I/Os

- **Miscellaneous**
  - DP receiver to HD-DVI transmitter bypass to support HD-DVI Alt Mode
  - Internal or external oscillator
  - Integrated microprocessor
  - Embedded SPI flash for firmware and HDCP keys
  - GPIOs for VBUS/VCONN/AUX and other system controls
  - Integrated 100/400kHz I2C slave
  - Firmware update through SPI, AUX or I2C interface
  - Low power consumption
  - Power supply: 3.3V for I/O and 1.2V for core
  - ESD ±1kV HBM
  - Temperature Range: -40℃ ~ +85℃
  - 64-pin QFN 7.5*7.5 package

2. General Description

The LT8711EH-C is a high performance Type-C/DP1.2 to HD-DVI2.0 converter, designed to connect a USB Type-C source or a DP1.2 source to an HD-DVI2.0 sink. The LT8711EH-C integrates a DP1.2 compliant receiver, and an HD-DVI2.0 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 HD-DVI interface includes 4 TMDS clock/data pairs, DDC, and HPD signal. The HD-DVI transmitter is capable

of supporting up to 6Gpbs data rate, quite adequate for handling video resolutions up to FHD 1080p 120Hz 3D and UHD 4k 60Hz formats. The transmitter performs downstream RX sensing in both DC and AC coupling applications. The HD-DVI transmitter incorporates HDCP engines which support both HDCP1.4 and HDCP2.2. With the inclusion of HDCP, the LT8711EH-C allows secure transmission of protected content. Embedded key is available that provides the highest level of HDCP key security.

The DP receiver PHY is HD-DVI signal compatible. It can receive HD-DVI signal and then bypass to the HD-DVI transmitter PHY. This feature allows the LT8711EH-C to suitably support HD-DVI Alt Mode. The integrated CC

controller will handle DDC/CES (Consumer Electronics Service) protocol conversion and communication.

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.

The LT8711EH-C is offered in a 64-lead QFN packages with ePad and is specified over the -40℃ to +85℃ operating temperature range.

3. Applications
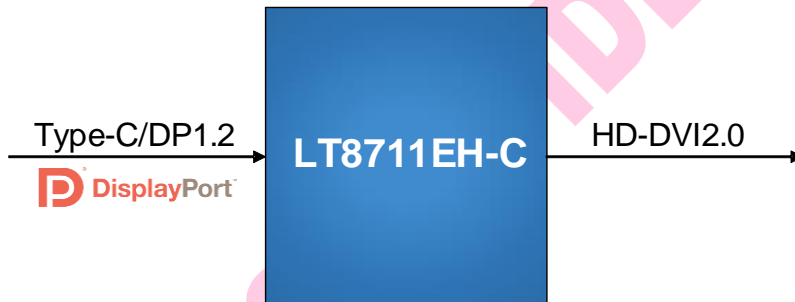
● Docking Station
● Dongle

Figure 3.1 Application Diagram

4. Ordering Information

Table 4.1 Ordering Information

Part Number	Operating Temperature Range	Package	Packing Method
LT8711EH-C	-40℃ to +85℃	QFN64 (7.5*7.5)	Tray
LT8711EH-C-AU	-40℃ to +85℃	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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