LT8711SXE --- Product Brief

Type-C/DP1.4 to Type-C/DP1.4/HDMI2.0 Converter with Audio

1. Features

- **USB Type-C**
  - Compliant with VESA DisplayPort Alt Mode on USB Type-C Standard 1.0b
  - 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 three CC logic and PD controller for charger or normal communication
  - Support UFP and DFP data roles
  - Support source, sink and DRP power roles
  - Support USB Billboard
- **DP1.4a/eDP1.5 Receiver**
  - Compliant with DisplayPort specification 1.4a for 1.62Gbps, 2.7Gbps, 5.4Gbps and 8.1Gbps
  - Compliant with Embedded DisplayPort specification version 1.5
  - Support SSC (de-spreading)
  - Support DisplayPort 1/2/4 lanes
  - Support FEC
  - Support ASSR for eDP
  - 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 4K@144Hz RGB 6bpc, YCbCr4:2:2 8 bpc or YCbCr4:2:0 12 bpc
  - Support DSC pass-through
  - Support HDR10
  - Support Horizontal Blanking Expansion
  - Support lane swap and PN swap
- **DP/DP++/HDMI Combo Transmitters**
  - **1 x DP1.4a Transmitters**
  - Compliant with DisplayPort specification 1.4a for 1.62Gbps, 2.7Gbps, 5.4Gbps, 8.1Gbps
  - Compliant Embedded DisplayPort specification version 1.5
  - Support DisplayPort 1/2/4 lanes
  - Support HDCP 1.3/2.3
  - Support RGB 6/8/10/12 bpc, YCbCr4:4:4/YCbCr4:2:2/ YCbCr4:2:0 8/10/12 bpc
  - Support up to 4K@144Hz RGB 6bpc, YCbCr4:2:2 8 bpc or YCbCr4:2:0 12 bpc
  - Support DSC pass-through
  - Support HDR10
  - Support FEC
  - Support ASSR for eDP
  - Support Horizontal Blanking Expansion
  - Support SSC
  - Support Type-C output
  - Support lane swap and PN swap

  - **1 x HDMI2.0/DP++ Transmitters**
  - Compliant with HDMI2.0, HDMI1.4 and DVI1.0
  - Integrated HDCP2.3 engine and HDCP1.4 engine
  - Data rate up to 6Gbps
  - Support TMDS scrambling for EMI/RFI reduction
  - Support SCDC
  - Support CEC
  - AC-couple capable
  - Programmable transmitter swing and pre-emphasis
  - Downstream receiver sensing
  - Support lane swap and PN swap
  - 5V tolerance DDC/HPD I/Os
- **Digital Audio Outputs**
  - I2S interface supports up to 2-channel audio, with

sample rates of 32~192 KHz and sample sizes of 16~24 bits
- TDM output 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**
  - Compliant with DSC 1.2a
  - Support DSC decoder
  - Support up to hactive 4096
  - Support up to pixel clock 1.44GHz
  - 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 1/16 bit
- **Miscellaneous**
  - CSC: RGB <-> YCbCr4:4:4 <-> YCbCr4:2:2<-> YCbCr4:2:0
  - Integrated 100/400KHz I2C slave
  - Integrated microprocessor
  - External oscillator 27MHz, +/-50ppm
  - Embedded SPI flash for firmware and HDCP keys
  - Firmware update through I2C or USB interface
  - Power supply: 3.3V and 1.15V

2. General Description

The LT8711SXE is a high performance Type-C/DP1.4 to Type-C/DP1.4/HDMI2.0/DP++ converter, with audio output interface. Also, three CC controllers are included for CC communication to implement DP Alt Mode and power delivery function. On-chip USB3.2 Gen1 switch is a high-speed bi-directional switch which provides flexible switching to accommodate connector flipping.

Digital audio output interfaces are available, including I2S/TDM/SPDIF.

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
- Video Hub
- Dongle

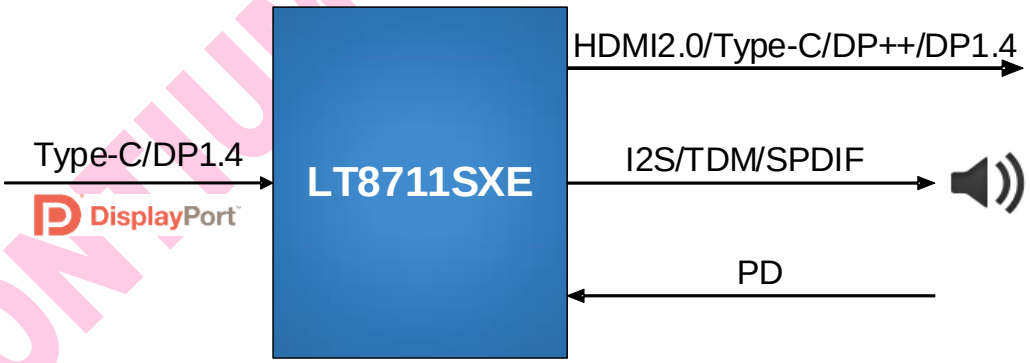

Figure 3.1. Application Diagram

4. Ordering Information

Table 4.1 Ordering Information

Product Name	Part Number	Product Status	Package	MSL	Bonding Wire	Grade	Operating Temperature Range	Stack Die Option	Packing Method	MPQ
LT8711SXE	LT8711SXE_U2Q02CED	MP	QFN88 (10*10)Saw	3	Cu	E	−40°C to +85°C	D	Tray	1680pcs

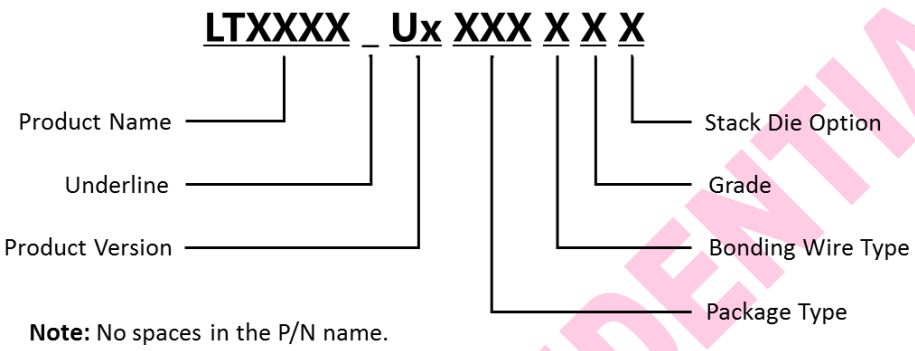

Figure 4.1 Part Number Naming Rules

Visit our corporate web page at: www.lontiumsemi.com
Technical support: support@lontium.com
Sales: sales@lontium.com