LT8711GXE --- Product Brief

Type-C/DP1.4a to HDMI2.1 Converter

1. Features

- **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 dual CC logic and PD controller for charger and normal communication
  - Data roles supported: UFP
  - Power roles supported: source, sink and DRP
  - Support USB Billboard

- **DP1.4a/eDP1.4b 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 SSC
  - Support DisplayPort 1/2/4 lanes
  - Support FEC
  - Support ASSR for eDP
  - Support HDCP 1.3/2.3
  - Support HDCP repeater
  - Support SST/MST mode
  - 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 RGB 6bpc, YCbCr4:2:2 10 bpc or YCbCr4:2:0 12 bpc
  - Support up to 4K@144Hz RGB 6bpc, YCbCr4:2:2 10 bpc or YCbCr4:2:0 12 bpc
  - Support up to 8K@60Hz DSC pass-through
  - Support HDR10
  - Support Adaptive-Sync
  - Support Horizontal Blanking Expansion

- **HDMI2.1 Transmitter**
  - Compliant with HDMI2.1, HDMI2.0b, HDMI1.4 and DVI1.0
  - Data rate up to 10Gbps
  - Support HDCP 1.4/2.2/2.3
  - Support HDCP repeater
  - Support RGB 8/10/12 bpc, YCbCr4:4:4/ YCbCr4:2:2/ YCbCr4:2:0 /8/10/12 bpc
  - Support up to 8K@30Hz RGB/YCbCr4:4:4/ YCbCr4:2:2 8bpc or YCbCr4:2:0 12 bpc
  - Support up to 4K@144Hz RGB/YCbCr4:4:4/ YCbCr4:2:2 8bpc or YCbCr4:2:0 12 bpc
  - Support up to 8K@60Hz DSC pass-through
  - Support HDR10
  - Support VRR
  - Support FEC
  - Support CEC
  - Support ARC

- **Digital Audio Input or 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 at up to 192KHz frame rate
  - Compliant with IEC60958 or IEC61937

- **DSC Decoder**
  - Compliant with DSC 1.2a
  - Support up to hactive 7680
  - 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
  - Support dynamic refresh rate

- **DSC Encoder**

- ▪ Compliant with DSC 1.2a
- ▪ Support up to hactive 7680
- ▪ Support up to pixel clock 1.44GHz
- ▪ Support 1/2/4/8 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
- ▪ Support dynamic refresh rate
- ● **Miscellaneous**
  - ▪ Support PD Charge
  - ▪ 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
  - ▪ Firmware update through SPI or I2C or USB interface
  - ▪ Power supply: 3.3V and 1.1V

2. General Description

LT8711GXE is a high performance Type-C/DP1.4a to HDMI2.1 converter, designed to connect a USB Type-C source or a DP1.4a source to an HDMI2.1 sink.

The LT8711GXE integrates a DP1.4a compliant receiver, and an HDMI2.1 compliant transmitter. Also, one CC controller is included for CC communication to implement DP Alt Mode and power delivery function, because it is one DRP (Dual Role port).

For DP1.4a input, LT8711GXE can be configured as 1/2/4 lanes. Adaptive equalization makes it suitable for long cable application and the maximum bandwidth is up to 32.4Gbps.

For HDMI2.1 output, LT8711GXE can be configured as 3/4 lanes. The maximum bandwidth is up to 40Gbps. It allow for the highest resolutions of 8K@30Hz, 4K@144Hz or 8K@60Hz with compression data.

Two digital audio input or 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.

3. Applications

- ● Docking Station
- ● Dongle

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
LT8711GXE	LT8711GXE_U1Q02AED	Preview	QFN88 (10*10)Saw	Au	E	−40°C to +85°C	D	Tray	1680pcs
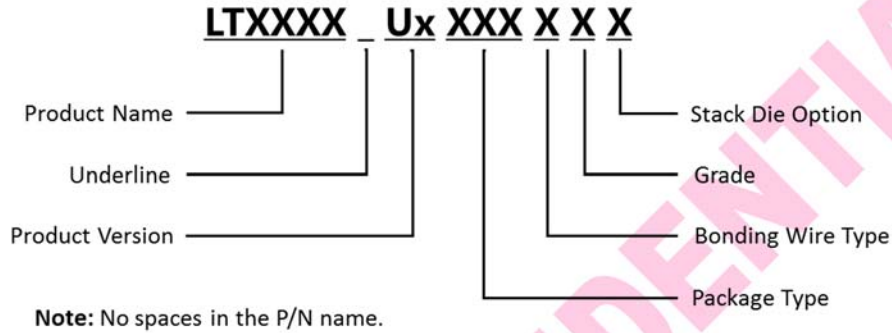
Figure 4.1   Part Number Naming Rules

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Technical support: support@lontium.com
Sales: sales@lontium.com