

# LT9711 --- Product Brief

## Dual-Port MIPI/LVDS to DP1.2 with Type-C

### 1. Features

#### ● MIPI/LVDS Receiver

- Compliant with D-PHY v1.2, DSI v1.3, CSI-2 v1.3 and DCS v1.02.00 for MIPI
- Compliant with VESA and JEIDA LVDS Specification
- 1~2 Configurable Port
- 1 Clock Lane and 1~4 Configurable Data Lanes
- 80Mb/s~2Gb/s per Data Lane
- Data Port ,Data Lane and Polarity Swapping
- Internal Rterm Calibration with Less than 5% Error
- Programmable Equalization
- Burst Mode and Non-Burst Mode Supported for MIPI
- Dual Port Odd-Even Mode and Left-Right Mode Supported
- Support up to 24-bit RGB and YUV Data Format

#### ● DP1.2 Transmitter

- Compliant to VESA DP1.2 Standard
- Support Four Lanes with 1.62Gbps (RBR), 2.7Gbps (HBR) or 5.4Gbps (HBR2) Data Rate
- Support Resolution up to 4Kx2K@60Hz
- Data Lane and Polarity Swapping
- Support HDCP1.3 Encryption
- Support 8/10/12-bit Deep Color
- Support Hot-Plug Detect
- Optional SSC 0.5% Down-Spreading Output
- Configurable and Power-on-Calibrated Output Swing for Optimized EMI
- Internal Rterm Calibration with Less than 5% Error
- Support Backlight Control & MCCS over AUX for eDP
- Build-in Pattern Generation

#### ● Full-Featured USB Type-C

- Compatible with USB3.1 Gen1, USB Type-C R1.2, DP Alt Mode V1.0 and USB PD R3.0
- 2 Data Roles Supported: DFP and UFP
- 3 Power Roles Supported: SRC, SNK and DRP
- USB PD-PHY (Tx/Rx) and BMC Encoding/Decoding
- USB PD Protocol Control by Software
- Bi-directional Active Switch for USB3.1 Gen1 SS Channel
- USB Full-Featured, Orientation and Role Detection
- 3-level Current Ability Advertise (Host Mode) or Detection (Device Mode) for Type-C Power: USB

- Default, 1.5A@5V, 3A@5V
- Support FR\_Swap
- SBU Data Path Control for DP Alt Mode
- Dead Battery Support When No Power Applied
- Support Standby Mode for Low-Power Operating

#### ● USB Type-C Charging Port

- Compatible with USB Type-C R1.2 and USB PD R3.0
- Only SNK Mode is Supported
- Dead Battery Support When No Power Applied

#### ● Miscellaneous

- Support SPDIF and 8-CH I2S Audio Input
- Support DSC Bypass Transmission
- Support OSD display with 8K Programmable Dot Matrix and Attribute Table
- 1.2V/3.3V Dual Supply Power
- External 27MHz Crystal Reference Clock
- Temperature Range: -40°C to +85°C
- Packaged in 7.5mm x 7.5mm QFN64
- Power Consumption: **TBD**

### 2. General Description

The Lontium LT9711 is Dual-Port MIPI/LVDS to DP1.2 converter with internal Type-C Alternate Mode switch and PD controller.

The MIPI DSI/CSI input features configurable single-port or dual-port with 1 clock lane, and 1~4 data lanes operating at maximum 2Gbps/lane, which can support a total bandwidth up to 16Gbps. LT9711 supports both burst mode and non-burst mode DSI video data transferring.

For DP1.2 output, it consists of 4 data lanes, supporting RBR (1.62Gbps), HBR (2.7Gbps) and HBR2 (5.4Gbps) link speeds. The build-in optional SSC function reduces EMI effect on EMI-concerned system application.

In order to be adaptable to the USB Type-C ecosystem, LT9711 integrates a high performance bi-directional Super-Speed switch controlled by CC logic and PD management unit to relieve mobile system design complexity and BOM cost. The switch function is compliant with VESA DP Alternate Mode on USB Type-C Standard.

The LT9711 is fabricated in advanced CMOS process and implemented in a small outline 9x 9mm QFN76 package. This package is RoHS compliant and specified to operate from -40°C to +85°C.

### 3. Applications

- Mobile systems, VR/AR
- Cellular handsets, PAD/Tablets
- Digital video cameras
- Digital still cameras

### 4. Ordering Information

Table 4.1.1 Ordering Information

| Part No. | Operating Temp. Range | Package     | Packing |
|----------|-----------------------|-------------|---------|
| LT9711   | -40°C to +85°C        | QFN76 (9*9) | Tray    |



Figure 1. LT9711 Typical Application Diagram

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