

LT9721EX --- Product Brief

HDMI2.0 to DP1.2 with Type-C

1. Features

● HDMI2.0 Receiver

- Compliant to HDMI2.0 Standard
- Support 3D Video Data Stream
- Support HDCP1.4/2.2
- Support HDR
- Support Resolution up to 4Kx2K@60Hz
- Support 8/10/12-bit Deep color
- Support DDC and CEC
- Support Hot-Plug Detect
- Support Status and Control Data Channel (SCDC)
- Support Data Lane Swap and Polarity Swap
- Build-in Pattern Generation

● 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 OSD display
- 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

LT9721EX is a deeply-optimized HDMI re-driver IC that enhances TMDS signal quality by performing cable or board trace loss compensation. LT9721EX can be configured to work under HDMI1.4b with up to 3.4Gb/s data rate or HDMI2.0 standard with maximum 6Gb/s data rate to allow for the highest resolutions of 4Kx2K 60Hz or 1080P with higher refresh rates.

The input receiver of LT9721EX features a multi-level programmable linear equalizer that can support maximum 25dB loss compensation due to Inter-Symbol Interference (ISI). The output transmitter re-drives the received signal with multi-level programmable output swing and up to 6dB de-emphasis.

The Build-in DDC interception function, co-working with an accurate frequency detect on clock channel is also included to automatically setup re-driver parameters.

LT9721EX internally integrates an 8-bit OCM and SPI flash memory (stacked die) to run program. Online software upgrade is also supported for LT9721EX.

LT9721EX is fabricated in advanced CMOS process and implemented in a small outline 5mmx5mm QFN40 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
LT9721EX	-40°C to +85°C	QFN64 (7.5*7.5)	Tray

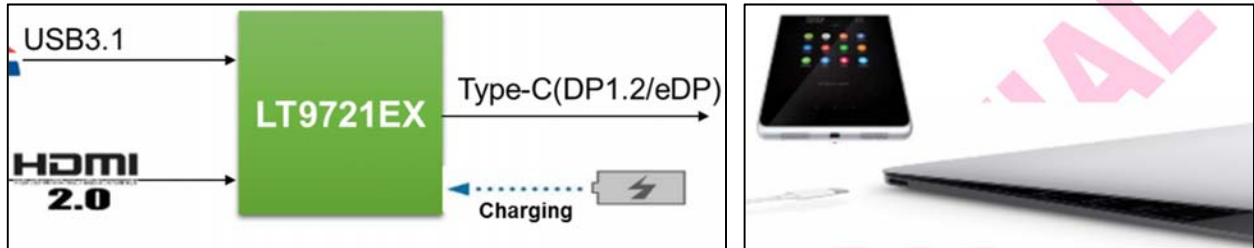


Figure 1. LT9721EX Typical Application Diagram

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