

# LT86121TXE --- Product Brief

## HD-DVI2.0 Repeater with DSC Encoder

### 1. Features

#### ● HD-DVI2.0 Receiver

- Compliant with HD-DVI2.0b, HD-DVI1.4 and DVI1.0
- Compliant with HDCP2.2 and HDCP1.4
- Data rate up to 6Gbps
- Adaptive receiver equalization
- Support 4k@60Hz
- Supported 3D formats:
  - DSC disabled: all 3D formats
  - DSC enabled: frame packing(progressive/interlaced), side-by-side(half/full), top-and-bottom, field alternative
- Supported video formats:
  - CSC/DSC disabled: all video formats
  - CSC/DSC enabled: 24-bit RGB/YCbCr4:4:4, 16/20/24-bit YCbCr4:2:2, 8-bit YCbCr4:2:0
- Integrated EDID shadow

#### ● HD-DVI2.0 Transmitter

- Compliant with HD-DVI2.0b, HD-DVI1.4 and DVI1.0
- No HDCP encryption
- Data rate up to 6Gbps
- On-die back termination
- Programmable transmitter swing and pre-emphasis
- Support 4k@60Hz
- Supported 3D formats:
  - DSC disabled: all 3D formats
  - DSC enabled: frame packing(progressive/interlaced), side-by-side(half/full), top-and-bottom, field alternative
- Supported video formats:
  - CSC/DSC disabled: all video formats
  - CSC/DSC enabled: 24-bit RGB/YCbCr4:4:4, 16/20/24-bit YCbCr4:2:2, 8-bit YCbCr4:2:0
- Integrated DSC encoder(paired with LT86121RXE)
- FEC support(paired with LT86121RXE)

#### ● Digital Audio Output

- I2S interface supporting 2-channel audio, with sample

rates of 32~192 kHz and sample sizes of 16~24 bits

- SPDIF interface supporting PCM, Dolby Digital, DTS digital audio at up to 192kHz frame rate
- IEC60958 or IEC61937 compatible

#### ● Miscellaneous

- Integrated USB HS/FS/LS repeater(paired with LT86121RXE)
- CSC: RGB <-> YCbCr4:4:4 <-> YCbCr4:2:2, support 8-bit only
- Integrated CES (Consumer Electronics Service) Controller (no command parsing)
- External oscillator
- Integrated microprocessor
- Embedded SPI flash for firmware and HDCP keys
- GPIOs for system controls
- Integrated 100/400kHz I2C slave
- Firmware update through SPI or I2C interface

### 2. General Description

The LT86121TXE is a high performance HD-DVI2.0 repeater designed for long cable application. It should be paired with LT86121RXE for longest cable reach. In paired mode, several unique features can be enabled to reduce bandwidth requirement and optimize performance.

Both the HD-DVI2.0 input and output support data rate up to 6Gbps which provides sufficient bandwidth for 4k@60Hz video. Also HDCP2.2 is supported for data decryption.

In paired mode, YCbCr4:1:1 conversion and DSC encoder can be used to reduce data rate and hence bandwidth requirement. Furthermore, FEC can be activated to correct data error and help to enhance system error tolerance level. These unique techniques together will significantly extend transmission distance.

Integrated USB repeater supports high speed, full speed

and low speed modes. It is suitable for USB signal extension. User defined packet is also supported which provides a path for sideband data communication.

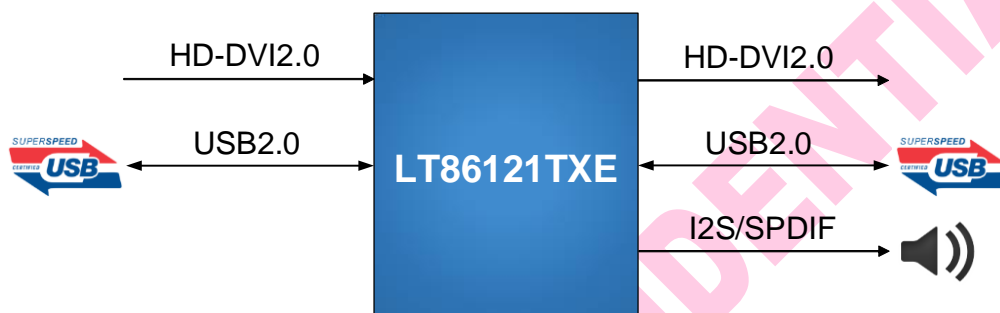
Two digital audio output interfaces are available, I2S and SPDIF. The I2S interface supports 2-ch LPCM and the SPDIF interface supports 2-ch LPCM or compressed audio, both at maximum 192kHz sample rate.

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

- Active Cables
- Surveillance
- KVM Extension



**Figure 3.1 Application Diagram**

### 4. Ordering Information

**Table 4.1 Ordering Information**

Part Number	Product Version	Product Status	Operating Temperature Range	Package	Packing Method	MPQ
LT86121TXE	U4	MP	-40°C to +85°C	QFN76 (9*9)	Tray	2600pcs
MP: Mass Production.						

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