LT86121EX --- Product Brief

HDMI2.1 Repeater with DSC Encoder

1. Features

- **HDMI2.1 Receiver**

  - Compliant with HDMI2.1, HDMI2.0b, HDMI1.4 and DVI1.0
  - Data rate up to 8Gbps
  - Support HDCP 1.4/2.3
  - Support HDCP repeater
  - Support 8k@30Hz, 8k@60Hz with compression data or YUV 4:2:0
  - Support HDR10 and HDR12
  - Support FEC
  - Support CEC
  - Integrated EDID shadow (max 512-byte)

- **HDMI2.1 Transmitter**

  - Compliant with HDMI2.1, HDMI2.0b, HDMI1.4 and DVI1.0
  - Data rate up to 8Gbps
  - Support HDCP 1.4/2.3
  - Support HDCP repeater
  - Support 8k@30Hz, 8k@60Hz with compression data or YUV 4:2:0
  - Support HDR10 and HDR12
  - Support FEC
  - Support CEC

- **Digital Audio Output**

  - I2S interface supporting 8-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**

  - VESA DSC v1.2a (v1.1 compatible) decode and encode
  - CSC: RGB <-> YUV444 <-> YUV422 <-> YUV420
  - Integrated 100/400KHz I2C slave
  - Integrated microprocessor
  - External oscillator 25MHz, +/-100ppm
  - Embedded SPI flash for firmware and HDCP keys
  - Firmware update through SPI or I2C interface
  - Power supply: 3.3V for I/O and 1.1V for core

2. Description

The LT86121EX is a high performance HDMI2.1 repeater designed for long cable application. It should be paired with LT86121EX for longest cable reach.

Both the HDMI2.1 input and output support data rate up to 8Gbps which provides sufficient bandwidth for 8k@30Hz video. Also HDCP2.3 is supported for data decryption.

In paired mode, 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.

Two digital audio 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.

LT86121EX is fabricated in advanced CMOS process

and implemented in 10mmx10mm QFN88 package.

3. Applications

- Active Cables
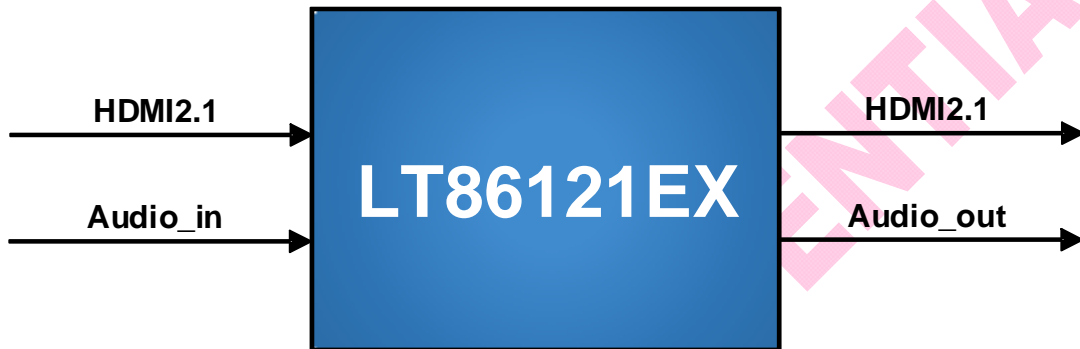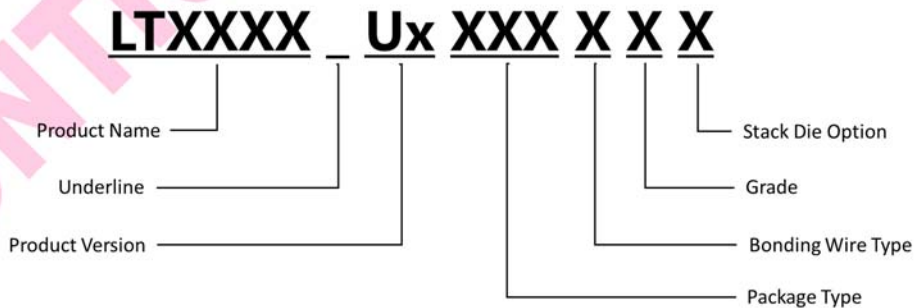- Surveillance

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
LT86121EX	LT86121EX_U1Q02AED	Preview	QFN88 (10*10)Saw	Au	Consumer	TBD	D	Tray

Figure 4.1   Part Number Naming Rules

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