

LT8712 --- Product Brief

DP to HDMI/VGA Converter with USB Type-C Support

Features

- **DisplayPort receiver**
 - DP 1.2 compliant
 - HDCP 1.3 compliant
 - Link rate 5.4/2.7/1.62Gbps (HBR2/HBR/RBR)
 - 1/2/4 lanes
 - Integrated CC controller for USB type-C Alt Mode support
 - 1Mbps AUX channel
 - SST/MST mode
 - Equalizer
- **Video DAC**
 - VSIS 1.2 compliant
 - 200MSPS throughput
 - WUXGA timing
 - R/B swappable
 - YPbPr output capable
 - Separate SYNC or embedded SYNC (SOG/SOY)
 - Load sensing
 - Amplitude calibration
 - 5V tolerance DDC I/Os
- **HDMI transmitter**
 - HDMI 1.4 compliant
 - DVI 1.0 compliant
 - Dual HDMI ports
 - AC-couple capable
 - Data rate up to 3Gbps
 - FHD 1080p 60Hz 3D
 - UHD 4k 30Hz
 - Pre-emphasis
 - Downstream RX sensing
 - Output swing calibration
 - 5V tolerance DDC/HPD I/Os
- **Digital audio output**

- I2S and SPDIF
 - 8-channel LPCM or compressed audio
 - Sample rate up to 192kHz
- **Miscellaneous**
 - Integrated MCU with embedded SPI flash
 - Power supply: 3.3V for I/O and 1.2V for core

Description

The LT8712 is a DisplayPort(DP) to HDMI and VGA converter, designed to connect a DP source to a VGA sink and up to two HDMI sinks simultaneously. The LT8712 integrates a DP 1.2 compliant receiver, a high-speed triple-channel video DAC and two HDMI 1.4 compliant transmitters (transmitter 0 and transmitter 1). The receiver port integrates a CC controller which enables DP Alternate Mode support when connected to a USB Type-C source.

Two digital audio output interfaces are available, I2S and SPDIF. Both support 8-ch LPCM or compressed audio at maximum 192kHz sample rate.

The device is capable of automatic operation that is enabled by an integrated MCU that uses an embedded SPI flash for microcode. System control is also available through the use of a dedicated configuration I2C slave interface.

The LT8712 is provided in two package types, LT8712 and LT8712B. LT8712 is a 128-lead LQFP package with ePad and LT8712B is a 144-ball LFBGA package. Both are specified over -40°C to +85°C operating temperature range.

Applications

- Docking station
- Video hub
- DP-to-HDMI/VGA dongle/adaptor


Figure 1. Application Diagrams

Ordering Information

| Part Number | Operating Temperature Range | Package | Packing Method |
|-------------|-----------------------------|------------------|----------------|
| LT8712 | -40° C to +85° C | LQFP128 (14*14) | Tray |
| LT8712B | -40° C to +85° C | LFBGA144 (10*10) | Tray |

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