LT4079 --- Product Brief

USB2.0/USB3.2Gen1 to SPI/TTL/MIPI/LVDS/eDP

1. Features

- **Support up to 1920X1080@60fps YUV422 8bpc**
- **CPU Core**
  - Single RISC-V core
  - Support RV32EMC Instruction set, 96MHz@1.2V
  - Support instruction cache, cache line 16 bytes
  - Support PMP
  - Support CLINT and CLIC，Support interrupt nesting
  - Support RISC-V machine mode and user mode
  - Support standard 2-wire JTAG
- **On-chip Storage**
  - 128K SRAM
  - PSRAM-64Mbit
  - PSRAM Support 8bit data bus
  - PSRAM Support SSC
- **Memory Interface**
  - ✧ QSPI Support SPI Flash
    - Support single-wire, dual-wire, quad-wire mode
    - Support program encryption
- **Video Process**
  - Support 90°/180°/270°rotation, up to 1024X600@60fps YUV422-8Bit
  - Support CSC, RGB->YUV, YUV->RGB convert
  - Support Frame rate control function (FRC)
  - Support font-based and bit-map OSD
- **Display Interface**
  - ✧ MIPI Transmitter
    - Support DPHY 1.2，DSI-2 1.3
    - Support 1 port output
    - Support 1clock lane and 1/2/3/4 configurable data Lanes
    - Maximum 1.5Gbps per data lane
    - Support 16/20/24-bit YCbCr422,16/18/24-bit RGB
    - Support Video mode and Command mode
    - Support lane swap and PN swap
    - Programmable transmitter swing and pre-emphasis
  - ✧ LVDS Transmitter
    - Compatible with VESA and JEIDA standard
    - Support 1 configurable port
    - 1 Clock lane and 4 configurable data lanes
    - Data rate up to 1.2Gbps per data lane
    - Programmable transmitter swing
    - Support SSC
    - Support lane swap and PN swap
  - ✧ eDP Transmitter
    - Compliant with VESA eDP1.4
    - Maximum 2.7Gbps per data lane
    - Support 1/2 lane
    - Support RGB666, RGB888, YUV422-8bit
    - Support SST mode only
    - Support ASSR
    - Support adaptive-Sync
    - Support lane swap and polarity inversion
    - Support SSC
  - ✧ TTL Transmitter
    - Support 16bit-RGB
    - Support SDR
    - Maximum Pixel Clock 74.25MHz
  - ✧ SPI Transmitter
    - Support RGB565/RGB666/RGB888
    - Support Master mode
    - Support 8bit SPI
- **Common Interface**
  - ✧ IIC
    - Support 2 IIC
    - Support Master/Slave configurable
    - Support 100/400KHz
  - ✧ UART
    - Support 2 UART
    - Support TX/RX configurable

- Support Max bitrate 1MHz

✧ PWM
- Support 2 PWM

✧ ADC
- Support an 8bit ADC
- Support max 6 channels
- Support Software trigger

✧ USB
- Support 1 USB
- Support USB device mode only
- Support USB2.0 and USB3.2 Gen1 configurable
- Support USB update FW online

● **Miscellaneous**
- Support embedded PSRAM
- Firmware update through IIC or USB interface
- Integrated 100/400KHz I2C slave
- External oscillator 25MHz, +/-50ppm
- Power supply: 3.3V and 1.2V

2. General Description

The LT4079 is a high performance USB2.0/USB3.2Gen1 to SPI/TTL/MIPI/LVDS/eDP converter, designed to connect a USB source to a display panel.

The LT4079 integrates an USB2.0/USB3.2Gen1 compliant device, and SPI/TTL/MIPI/LVDS/eDP video transmitter. Also, integrates an embedded PSRAM for Frame rate control function and a high-performance OSD. Also supports panel touch data transmission for human-computer interaction and extensive generic interface options, such as I2C/UART/PWM/QSPI.

The device is capable of automatic operation which is enabled by an integrated RISC-V core for real-time control tasks. Also, uses a QSPI flash for firmware storage. System control is available through the use of a dedicated configuration I2C slave or USB interface.

3. Applications

- PC Display Casting
- PC Auxiliary Display
- Water Cooler
- Mobile Monitor

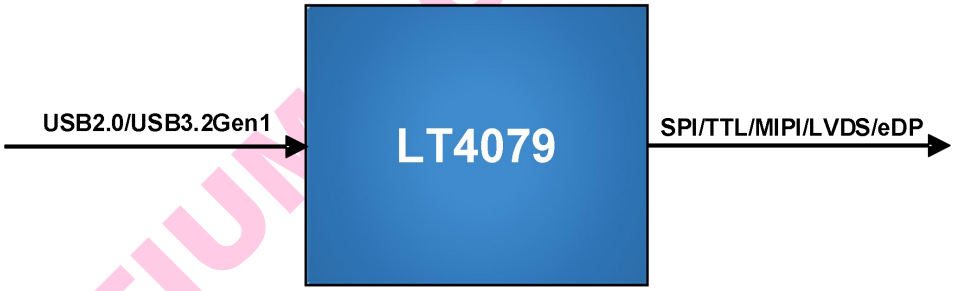

Figure 3.1 Application Diagram

4. Ordering Information

Table 4.1 Ordering Information

Product Name	Part Number	Product Status	Package	MSL	Bonding Wire	Grade	Operating Temperature Range	Stack Die Option	Packing Method	MPQ
LT4079	LT4079_U1Q27CEU	Preview	QFN68(8*8)Saw	TBD	Cu	E	-40℃ to +85℃	U	TBD	TBD

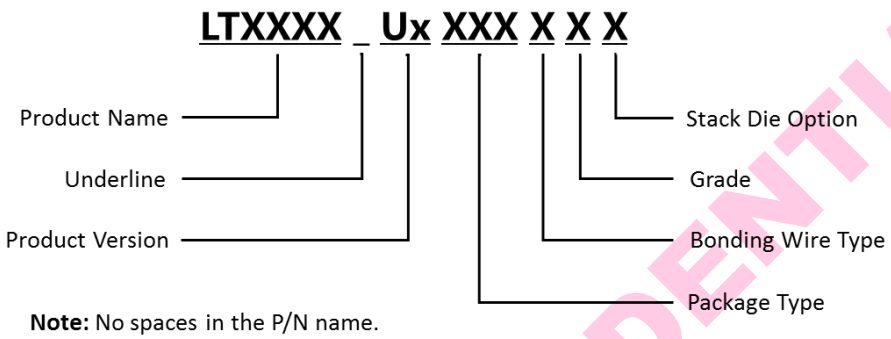

Figure 4.1 Part Number Naming Rules

Visit our corporate web page at: www.lontiumsemi.com
Technical support: support@lontium.com
Sales: sales@lontium.com