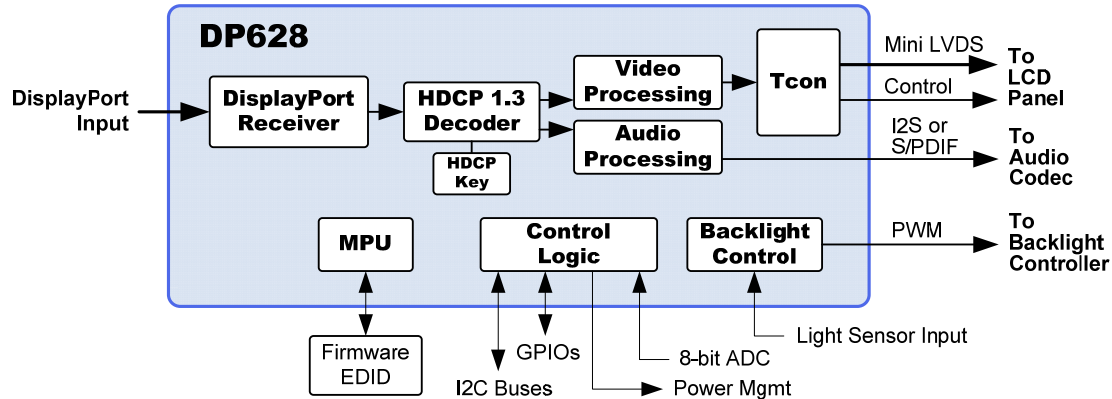# DP628 DisplayPort DDM Panel Controller

Product Brief

DP628

FEATURES

- Compliant with the VESA Direct Drive Monitor (DDM) Standard, Version 1.0
- Includes 4-lane DisplayPort™ 1.1a receiver
- Compliant to VESA DisplayPort Standard version 1.1a for both 1.62 and 2.7 Gbps link rates
- CrystalFree™–no external crystal or clock needed
- Adaptive equalizer -supports long DP cable
- Low power consumption
- Integrated TCON with Fully Programmable Timing
    - Supports LCD panels up to 2560 x 1600
    - Scaler provides full screen display in safe mode
    - Supports input with 6/8/10/12-bit color depth
    - mini-LVDS Output Format (up to 10 bit)
    - Gamma LUT plus True Color FRC/Dither Engine
- Integrated MPU and backlight control
- Supports 120 Hz panel at reduced resolution
- Supports Audio stream in DP with I2S/SPDIF Outputs
- Supports On-Screen-Display bar and MCCS
- EMI filtering on mini-LVDS interface
- Supports AUX Channel based power management
- ESD protection 8kV HBM at connector pins
- 176-pin 20x20mm TQFP package

DESCRIPTION

The DP628 is a panel timing controller (Tcon) developed specifically for a PC Direct Drive Monitor (DDM). It includes a DisplayPort receiver and supports display resolutions up to 2560 x 1600 (WQXGA) with up to 30 bit color. It is designed to be mounted on the LCD panel, elliminating the seperate monitor controller board within the monitor to reduce monitor size and cost.

The DP628 provides pixel data through a mini-LVDS interface with programmable timing to support a variety of LCD panel designs. The device includes audio support through both I2S and S/PDIF digital outputs. The DP628 de-spreads the DisplayPort SSC Link clock, and can also add SSC on the mini-LVDS output.

A scaler function is included to provide a full screen display for lower resolution video that may occure during Safe Mode or other DOS modes. Full screen display is supported for input modes such as 640x480, 800x600, and 1024x768.

For the support of 1920x1200 display resolution and lower, please also refer to the DP627.

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