RTD2486HD-CG

Multi-Function Display Controller

Specification

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Version 1.00
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1. Features

General
- Embedded 3 DDC with DDC1/2B/CI
- Zoom scaling up and down
- Embedded one MCU with SPI flash controller.
- It contains 4 ADCs in key pad application
- Require only one crystal to generate all timing.
- Programmable internal low-voltage-reset (LVR)
- High resolution 6 channels PWM output, and wide range selectable PWM frequency.
- Support input format up to FHD.

Crystal
- Support 27MHz/24MHz/14.318MHz crystal type

Analog RGB Input Interface
- 1 Analog input supported
- Integrated 8-bit triple-channel 210MHz ADC/PLL
- Embedded programmable Schmitt trigger of HSYNC
- Support Sync-On-Green (SOG) and various kinds of composite sync modes
- On-chip high-performance hybrid PLLs
- High resolution true 64 phase ADC PLL
- YPbPr support up to HDTV 1080p resolution

HDMI 1.4a Compliant Digital Input Interface with HDCP
- HDMI Input with embedded high speed switch
- Single link on-chip TMDS receiver up to 225MHz.
- Support long cable
- Adaptive algorithm for TMDS capability
- Data enable only mode support
- High-Bandwidth Digital Content Protection (HDCP 1.3)
- Enhanced protection of HDCP secret key
- Capable of 8-channel I2S/SPDIF output in HDMI application
- ATC Lab certification pass HDMI1.4a compliance test
- Support DVI 1.0

DisplayPort 1.2 Digital Input Interface with HDCP 1.3
- Support 4 lanes digital input, each lanes speed up to 1.62Gbps and 2.7Gbps
- Support 6-bit, 8-bit, 10-bit, and 12-bit color depth transport
- High-Bandwidth Digital Content Protection (HDCP 1.3)
- Capable of 8-channel I2S/SPDIF output in DP application

Embedded MCU
- Industrial standard 8051 core with external serial flash
- Low speed ADC for various application
- I2C Master hardware supported

Auto Detection /Auto Calibration
- Input format detection
- Compatibility with standard VESA mode and support user-defined mode
- Smart engine for Phase/Image position/Color calibration

Audio
- 5-band Equalizer
- AVC (Auto Volume Control)
- Output: IIS , SPDIF
- Embedded 2ch Audio DAC
- Embedded headphone amp

Scaling
- Fully programmable zoom ratios
- Independent horizontal/vertical scaling
- Advanced zoom algorithm provides high image quality
- Sharpness/Smooth filter enhancement
- Support non-linear scaling from 4:3 to 16:9 or 16:9 to 4:3

Color Processor
- True 10 bits color processing engine
- xvYCC supported
- sRGB compliance
- Advanced dithering logic for 18-bit panel color depth enhancement
- Dynamic overshoot-smear canceling engine
- Brightness and contrast control
- Programmable 10-bit gamma support
- Peaking/Coring function for video sharpness

VividColor™
- Independent color management (ICM)
- Dynamic contrast control (DCC)
- Precise color mapping (PCM)
- Active adaptive power saving(IAPS)

Output Interface
- Fully programmable display timing generator
- Flexible data pair swapping for easier system design.
- Display clock supports up to186MHz (1920x1080@75Hz)
- LVDS -output interface on single PCB
- Support 8-bit LVDS output

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- Spread-Spectrum DPLL to reduce EMI
- Fixed Last Line output for perfect panel capability

Embedded OSD

- Embedded 20K SRAM dynamically stores OSD command and fonts
- Support multi-color RAM font, 1, 2 and 4-bit per pixel
- 64 color palette
- Maximum 18 window with alpha-blending/
- gradient / gradient target color / gradient reversed color/ dynamic fade-in/fade-out, bordering/ shadow/3D window type
- Rotary 90,180,270 degree
- Independent row shadowing/bordering
- Programmable blinking effects for each character
- OSD-made internal pattern generator for factory mode
- Support 12x18~4x18 proportional font
- Hardware decompression for OSD font
- Support OSD scrolling
- Support 2 independent font based OSD

Power Supply

- 3.3V / 1.2V power supply
- Low standby current (<9mA)

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