GENESIS MICROCHIP

Preliminary Product Brief gm5115

C5115-PBR-01A

Dual Interface OnPanel LCD Controller

The gm5115 device is an all-in-one image processor targeted on the "Smart" LCD panel market with resolutions up to XGA. The gm5115 leverages Genesis patented advanced image processing technology as well as a proven integrated ADC/PLL and an Ultra-Reliable DVI compliant digital receiver to provide excellent image quality in simple and cost-effective solution. The integrated timing controller (TCON) is fully programmable to interface to a wide-range of commercially available LCD panels. In addition, an integrated microcontroller is provided. This high level of integration reduces the number of components eliminating a whole PCB along with its associated connectors and cables. This reduces system cost, improves reliability and simplifies monitor design.

FEATURES

- Zoom (from VGA) and shrink (from SXGA) scaling
- Integrated 8-bit triple-channel ADC / PLL
- Integrated Ultra-Reliable DVI 1.0-compliant receiver
- High-Bandwidth Digital Content Protection (HDCP)
- On-chip programmable OnPanel timing controller
- Embedded microcontroller with parallel ROM interface
- On-chip versatile OSD engine
- All system clocks synthesized from a single external crystal
- Programmable gamma correction (CLUT)
- RealColor™ technology provides flesh tone adjustment
- PWM back light intensity control
- 5 Volt tolerant inputs
- Low EMI and power saving features

· High-Quality Advanced Scaling

- Fully programmable zoom ratios
- High-quality shrink capability
- RealRecovery™ function provides full color recovery image for refresh rates higher than those supported by the LCD panel
- Moire cancellation

· Analog RGB Input Port

- Supports up to SXGA at 75Hz
- On-chip high-performance PLLs (only a single reference crystal required)

· Ultra-Reliable DVI Compliant Input Port

- Operating up to 135 MHz
- Direct connect to all DVI compliant digital transmitters
- High-bandwidth Digital Content Protection (HDCP)

· RealColor™ Technology

- Digital brightness, contrast, hue and saturation controls
- Full color matrix allows end-users to experience the same colors as viewed on CRTs and other displays
- Flesh-tone adjustment

· Auto-Configuration / Auto-Detection

- Phase and image positioning
- Input format detection

· On-chip OSD Controller

- On-chip RAM for downloadable menus
- 1, 2 and 4-bit per pixel character cells
- Horizontal and vertical stretch of OSD menus
- Blinking, transparency and blending

· On-chip Microcontroller

- Requires no external micro-controller
- External parallel ROM interface allows firmware customization with little additional cost
- 21 general-purpose inputs/outputs (GPIO's) available for managing system devices (keypad, back-light, NVRAM, etc)

· Built-in OnPanel Timing Controller

- Eliminates the need for an external timing controller (TCON) device, thereby reducing system cost
- Direct connect to commercial row/column driver ICs (supports dual-bus / dual-port and dual-bus / single-port)
- Low EMI and power saving features (include frame, line and in-line inversion, blanking, data skewing).

· Output Format

- Single / Double wide up to XGA 75Hz output
- Pin swap, Odd/Even swap and Red/Blue group swap of RGB outputs for flexibility in board layout
- Support for 8 or 6-bit panels (with high-quality dithering)

· Highly Integrated System-on-a-Chip Reduces Component Count for Highly Cost Effective Solution

· Industry Leading Image Quality

· Easy Programming using G-Wizard and OSD-Workbench Software Tools

APPLICATION

- "Smart LCD Panels" up to XGA Resolution

PACKAGE

- 208-pin PQFP

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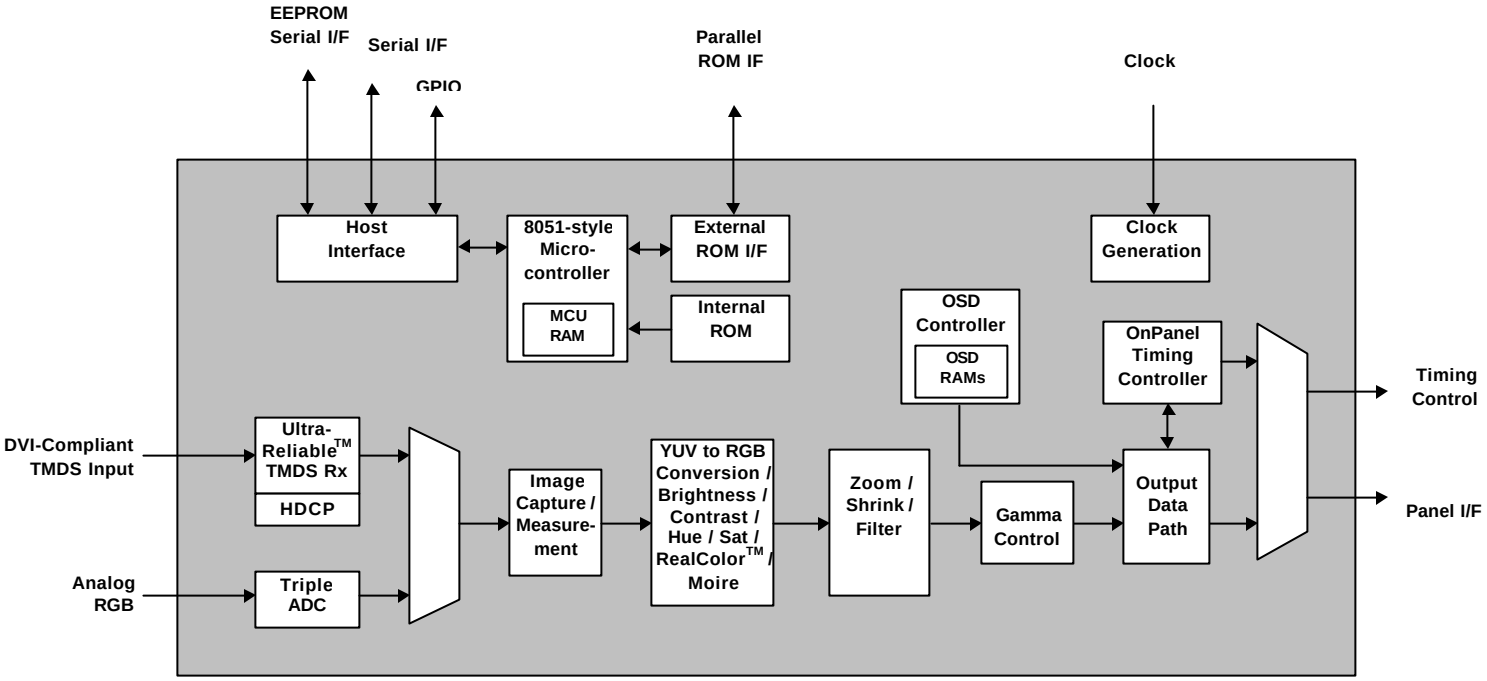
gm5115 Functional Block Diagram



gm5115 Smart Panel Example