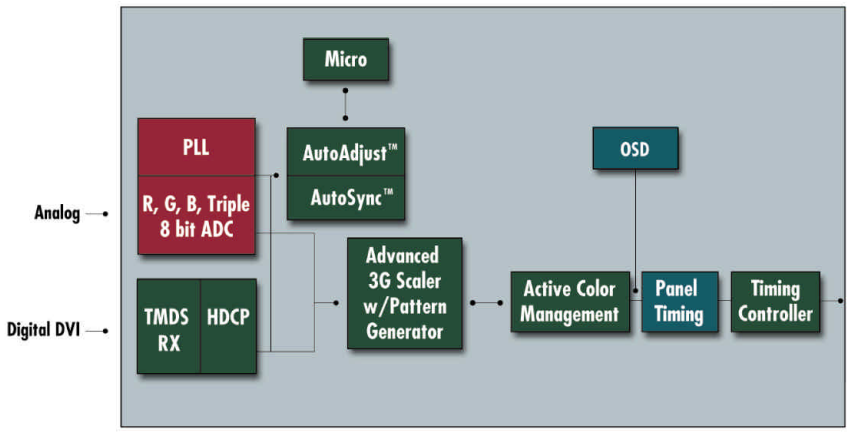

# s9350

## Industry's First Dual Interface SmartMonitor™ Display Processor with Integrated Timing Controller and Microprocessor

The s9350-100 and s9350-135 are both highly integrated dual interface parts. Both have the ADC/PLL, DVI Rx with HDCP, TCon (Timing Controller) and Microprocessor integrated on a single chip. The cost effective s9350-100 is suitable for the XGA and the s9350-135 for the SXGA market segment that require memory less configurations. Other features include a improved high-end non-linear scaler; Active Color management™ with Fleshtone correction, a flexible OSD, AutoAdjust, AutoSync and independent monitoring of the Analog and Digital interfaces. To make the process of manufacturing monitors simple a new standalone on-chip pattern generator has been incorporated. These processors are ideally suited for the SmartMonitor™ concept.




## Features

**High Integration for the SmartPanel concept**

- Integrated ADC/PLL
- Integrated DVI Rx with HDCP
- Programmable TCon
- Embedded Micro controller with 8KB data memory
- Advanced Scaler with Edge Enhancement
- Digital Brightness/Contrast Control
- Support for 1 or 2 pixel/clock

**Advanced 3rd Generation Scaling Technology**

- Non-linear independent X/Y Scaling with edge enhancement including the 1:1 mode
- Supports image expansion and reduction
- Up scale or down scale from any industry standard input resolutions
- Conversion between 4:3 and 16:9 aspect ratio

**High Performance Architecture**

- Automatic and independent monitoring of the input ports –analog and digital
- Transition Minimization circuitry
- Industry proven Microcontroller (80186 compatible)
- Color Management with Fleshtone correction

**Analog RGB Input Port**

- Supports up to SXGA 75Hz
- Support for Sync-on-green (SOG) and Composite Sync modes

**DVI Compliant Digital Input Port**

- Single link integrated DVI Rx up to 140MHz operation
- Support for DE-only mode
- Direct connect to all DVI compliant DVI transmitters
- High-bandwidth Digital Content Protection (HDCP)

**SureSync™ and AutoAdjust™**

- Two independent AutoSync™ channels for monitoring the analog and digital inputs
- AutoAdjust and Auto Color™
- Automatically detects and syncs to changes in incoming resolution and refresh rate
- Fast, Automatic optimization of Phase, Hsize, Vert & Horz Position

**Hi Fidelity Color Mapping**

- 24 bit/pixel (8 bit each for R, G, B)
- 10-bit Gamma correction for true color display
- Spatio-Temporal 30-bit to 24-bit or 18-bit high quality dithering support
- High fidelity Color Mapping – up to 16M colors

**Active Color Management™**

- Hue Saturation and Contrast control in digital domain
- Fleshtone mapping for multiple color spectrums

**Highly flexible On Screen Display (OSD)**

- Character based OSD with 16 foreground and 8 background colors
- Support for up to 16 colors for character/displaying logos and ICONS
- Supports transparency and blending
- Independent X and Y overlay/menu zoom by a factor of (1 to 8)
- Flexible character generator for variable sizes up to 16x32.
- Character attributes for 1, 2, 4 bits/pixel
- Fully programmable OSD memory of 4k x 16bits
- Multiple language support

**Programmable Timing Controller**

- Direct interface to Row/Column Drivers
- Supports up to 16 channels
- Supports line pulse and frame pulse generation
- Transition minimization circuitry
- Clock Skew modulation for EMI reduction
- Selective inversion of output data
- Support for external spread spectrum chip

**Flexible Panel Display Support**

- Support for 1 pixel/clock (18 and 24 bit), 2 pixel/clock (36 and 48 bit) TFT panels
- Flexible TFT panel formatter that supports a wide variety of panels

**Output Format**

- Up to 1280x1024 75Hz (S9350-135)
- Up to 1024x768 75Hz (S9350-100)

**Integrated Microcontroller**

- Industry proven 80186 compatible core
- Supports internal UART for debug
- Supports all industry standard tools
- External Micro controller Support

**Standalone Pattern Generator**

- Supports generation of horizontal/ vertical bars and checker patterns
- Support for both color and monochrome
- No external inputs required

**System Interface Support**

- Integrated Microcontroller support
- GPIO pins can be programmed as Interrupt, PWM channels etc.
- 2 wire serial host interface.

**Operating Voltages**

- 3.3 V IO with 5V tolerant pins
- 2.5 V core

**208-pin LQFP Package**

**0.25 micron Technology**

sage

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