



## Analog LCD Display Engine for XGA and SXGA Resolutions with Embedded LVDS and RSDS Transmitters

DATABRIEF

### Feature Overview

- Programmable Context Sensitive™ Filtering
- High-quality Up-scaling and Down-scaling
- Integrated 10-bit Triple Channel ADC/PLL
- IQSync™ AutoSetup
- Integrated Programmable Timing Controller
- Integrated LVDS Transmitters
- Integrated Pattern Generator
- Perfect Picture™ Technology
- sRGB 3D Color Warp
- High performance OSD supporting 1- to 4-bpp, proportional fonts
- Advanced EMI reduction features
- Serial I²C interface

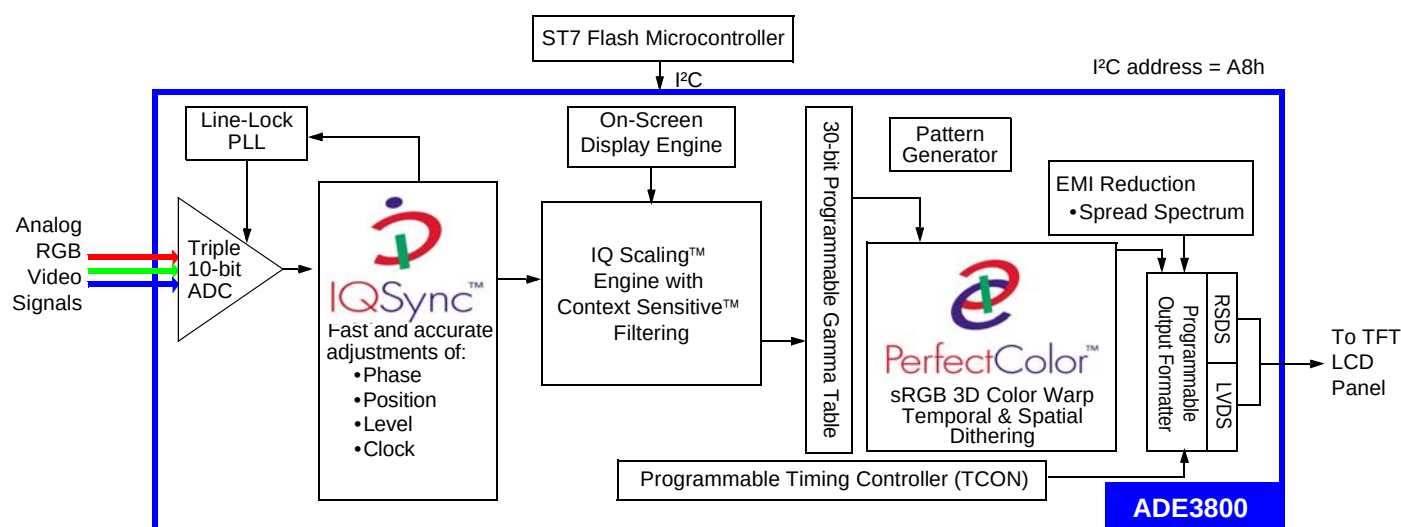
- Low power 0.15 µm process technology
- Low cost 100-pin LQFP and 128-pin LQFP packages
- Lead-free versions available in 2005.

### General Description

ADE3800 devices are a family of highly-integrated display engine ICs, enabling the most advanced, flexible, and cost-effective system-on-chip solutions for analog-only input LCD display applications.

The ADE3800 covers the full range of XGA and SXGA analog-only monitor applications using LVDS or RSDS interface.

The ADE3800 family is software compatible.



### LCD Scaler Product Selector

| Product    | Package  | Output Format Support |           |      |
|------------|----------|-----------------------|-----------|------|
|            |          | Resolution            | RSDS/TCON | LVDS |
| ADE3800XL  | 100 LQFP | Up to XGA 75 Hz       |           | Yes  |
| ADE3800XT  | 100 LQFP | Up to XGA 75 Hz       | Yes       |      |
| ADE3800SXL | 100 LQFP | Up to SXGA 75 Hz      |           | Yes  |
| ADE3800SXT | 128 LQFP | Up to SXGA 75 Hz      | Yes       |      |

**Context Sensitive™ Scaler**

- Sharper text with Edge Enhancement
- Programmable coefficients for unique customization
- From 5:1 upscale to 2:1 downscale
- Independent X - Y axis zoom and shrink

**Analog RGB input**

- 140 MHz 10-bit ADC
- Ultra low jitter digital Line Lock PLL
- Composite Sync and Sync on Green built-in support

**IQsync™ AutoSetup**

- AutoSetup configures phase, clock, level, and position
- Automatically detects activity on input
- Compatible with all standard VESA and GTF modes

**Perfect Picture™ Technology**

- Video & Picture highlight zone
- Supports up to 4 different windows
- Independent window controls for contrast brightness and color

**Perfect Color™ Technology**

- Programmable 3D Color Warp
- Digital brightness, contrast, hue, and saturation gamma controls
- Simple white point control
- Compatible with sRGB standard
- True color dithering for 18 and 24-bit panels
- Temporal and spatial dithering
- 30-bit programmable gamma table

**OSD Engine**

- 12 KB RAM based 12x18 characters
- 1, 2, 3, 4-bit per pixel color characters
- Multiple Windows
- Bordering, shadowing, transparency, fade-in and fade-out effects

- Supports font rotation
- Up to full screen size, multiple windows
- 64-entry TrueColor LUT with alpha-blending

**Programmable Timing Controller (TCON)**

- Highly programmable support for XGA and SXGA smart panels
- RSDS split line support for SXGA smart panels
- Supports 18, 24, 36, and 48-bit RSDS outputs
- Advanced Flicker Detection and Reduction
- 8 programmable timing signals for row/column control
- Wide range of drivers & TCON compatibility

**Integrated LVDS Transmitters**

- Dual 4 channel 6/8 bit LVDS transmitters
- Programmable channel swapping
- Programmable channel polarity
- Programmable group channel swapping for flexibility in board layout
- Programmable output swing control

**Advanced EMI Reduction Features**

- Flexible data transition minimization, single and dual
- Differential clock and signals
- Spread spectrum - programmable digital FM modulation of the output clock with no external components

**Output Format**

- Supports resolutions up to SXGA @ 75Hz
- Supports resolution above SXGA (1280x1024) with convenient input and output pixel clocks
- Supports 6 or 8-bit Panels
- Supports single or double pixel wide formats

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