

FLI5962/FL5961/FLI5921

Multi-Function LCD Monitor Controllers up to WUXGA

APPLICATION

- Multi-function LCD monitors up to WUXGA resolutions
- Mid-range LCD TVs with PC and HDTV connectivity

FEATURES

- Triple ADC and PLL up to 195MHz (FLI5962 only)
- Integrated Ultra-Reliable DVI® Receiver up to 165MHz
- HDCP supported with FLI59XXH versions
- ITU656 video input
- ITU601 (16-bit) video input (FLI5962 only)
- Variable PIP window up to 640x480
- DCDi Edge Processing
- MADi, Film Mode Detection, Temporal Noise Reduction and Cross color Suppression for SDTV
- Response Time Compensation
- Frame Rate Conversion
- Panoramic scaling for wide output resolutions
- TV color controls using ACC and ACM-II
- Faroudja True-life Horizontal Enhancements
- Versatile OSD Controller for high quality bitmap-like TV OSD
- Embedded x86 Microprocessor with external SPI FLASH ROM
- Dual LVDS Transmitter for direct interconnect to LCD Panels up to WUXGA 60Hz

PACKAGE

- 256 PQFP for FLI5962
- 208 PQFP for FLI5961/FLI5921

DESCRIPTION

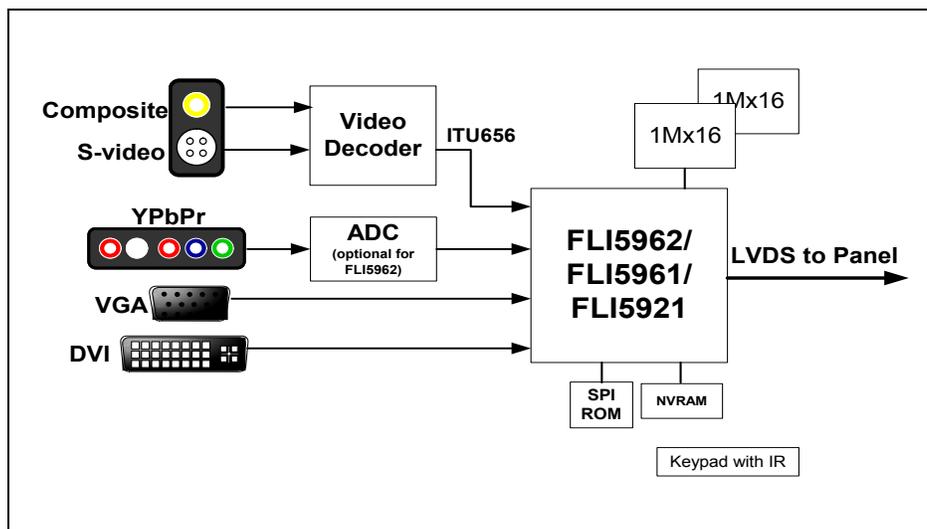
The FLI59XX family of controllers are a highly integrated mixed signal LCD Controllers for Multi-Function LCD Monitors and LCD TV applications supporting up to WUXGA resolutions. The FLI59XX has integrated advanced video image processing from Faroudja as well as proven ADC/PLL and Ultra-Reliable DVI compatible digital receiver with frame rate conversion to ensure proven PC graphics compatibility.

With Emmy award winning Faroudja DCDi technology incorporating Horizontal Enhancement technology, advance TV color control with Adaptive Contrast and Color (ACC) and Active Color Management-II (ACM-II), in addition to industry leading motion adaptive de-interlacing (MADi), advanced film mode detection and response time compensation, the FLI59XX processes SDTV inputs to output pixilated images that are crisper with life-like quality.

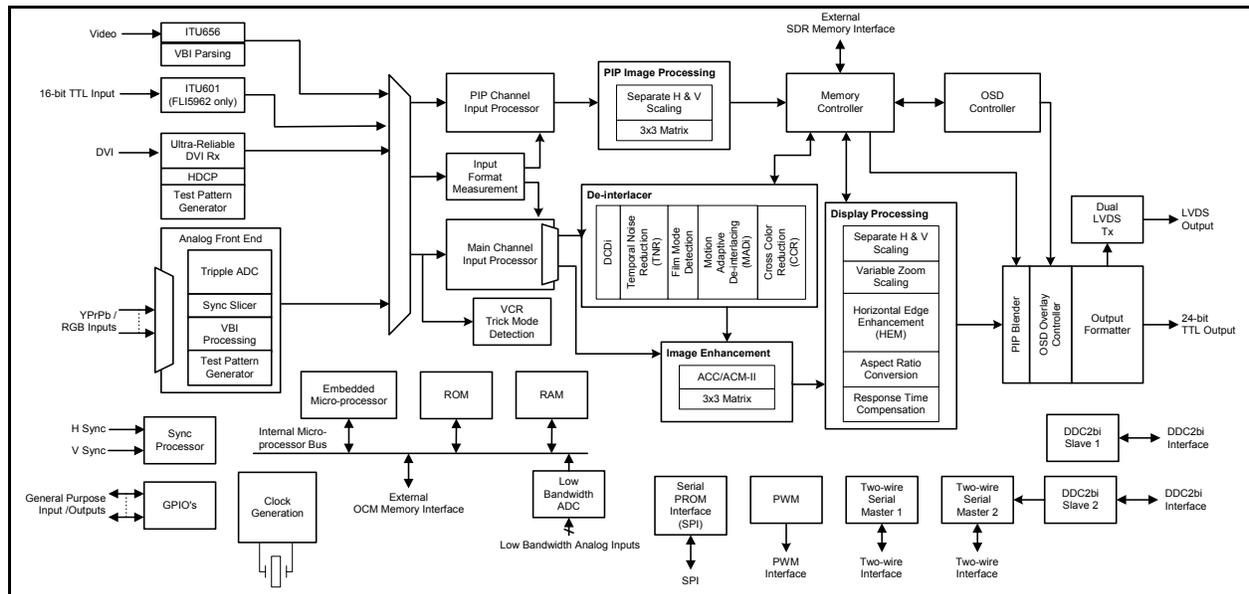
Integrated picture-in-picture, embedded microcontroller, versatile OSD engine, low bandwidth general purpose ADC and dual LVDS transmitters (or optional TTL output) enables cost effective HDTV-ready Multi-function LCD monitor or LCD TV solutions.

- FLI5962 supports up to WUXGA (1920x1200) resolutions
- FLI5961 supports up to UXGA (1600x1200) resolutions
- FLI5921 supports up to SXGA (1280x1024) resolutions including 1366x768

SYSTEM DESIGN: MULTI-FUNCTION LCD MONITOR



FUNCTIONAL BLOCK DIAGRAM



FEATURE DESCRIPTIONS

DUAL ANALOG INPUT

- Operation up to 195MHz (FLI5962 only)
- Dual RGB inputs
- Single RGB & single YPbPr up to 1080i inputs
- Bi-level and tri-level analog sync support and Macrovision support
- Dual HSYNC, VSYNC and SOG inputs

ULTRA-RELIABLE DVI™ INPUT

- Operation up to 165MHz
- Direct connect to all DVI compliant digital transmitters
- High-bandwidth Digital Content Protection (HDCP- FLI59XXH only)

DIGITAL VIDEO INPUT

- ITU656 video input support for commercially available video decoder
- ITU601 (16-bit) video input support for external MPEG2 decoder, DVI Rx and ADC (FLI5962 only)

HIGH QUALITY ADVANCED SCALING ENGINE

- Independent and programmable H & V scaling factors
- Panoramic scaling (non-linear)
- Variable Sharpness Settings

PICTURE-IN-PICTURE (PIP)

- Variable PIP window size up to 640x480
- Video PIP on Graphics /Graphics PIP on Video
- Independent PIP window color controls

FRAME RATE CONVERSION (FRC)

- 16-bit/32-bit data path to support single or dual 1Mx16 SDR SDRAM
- Full frame rate conversion up to SXGA 75Hz

FAROUDJA VIDEO PROCESSING & COLOR CONTROL

- Motion Adaptive De-interlacing (MADi) for SDTV
- Inverse 3:2/ 2:2 pull down for Film Mode Detection for SDTV
- DCDi Edge Processing for SDTV
- Temporal Noise Reduction(TNR) up to 720P
- Cross Color Reduction
- Faroudja True-life Horizontal Enhancement
- ACC, ACM-II and ACM-3D (FLI5962 only)

RESPONSE TIME COMPENSATION

- Compensates motion blur that results from slow response time of LCD panels – resulting in motion image that is clean and crisp

OSD CONTROLLER

- Up to 4 windows
- 1, 2 or 4-bits per pixel color
- Blinking, transparency, blending and proportional fonts support

OUTPUT SUPPORT UP TO WUXGA 60Hz

- Dual Channel LVDS Transmitters with pin swap for flexibility in PCB layout
- Optional 24-bit TTL output

SYSTEM-ON-CHIP INTEGRATION FOR LOWER BOM

- On-chip reset circuit with Integrated Schmitt trigger for HSYNC and VSYNC
- Embedded x86 MCU with serial interface
- General Purpose Low Bandwidth ADC
- Integrated gamma and 3x3 LUT for sRGB compliance
- ESM® and Boundary Scan Support