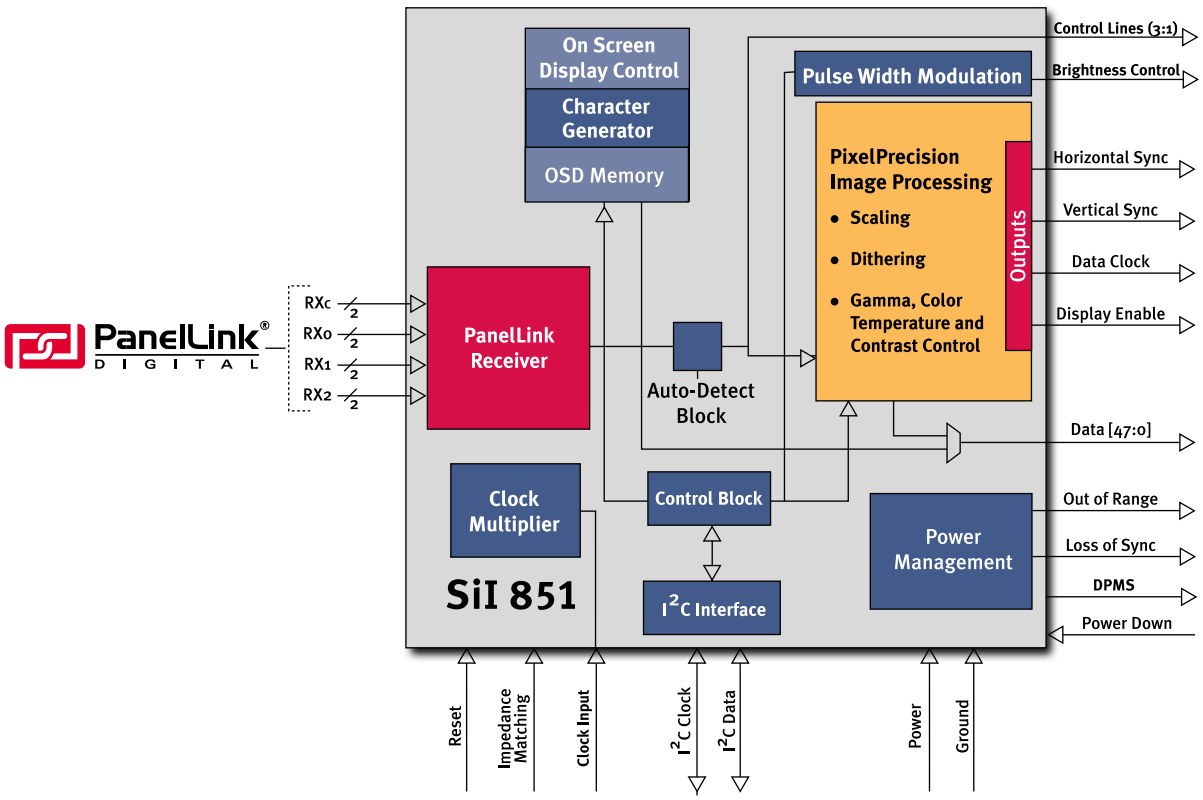
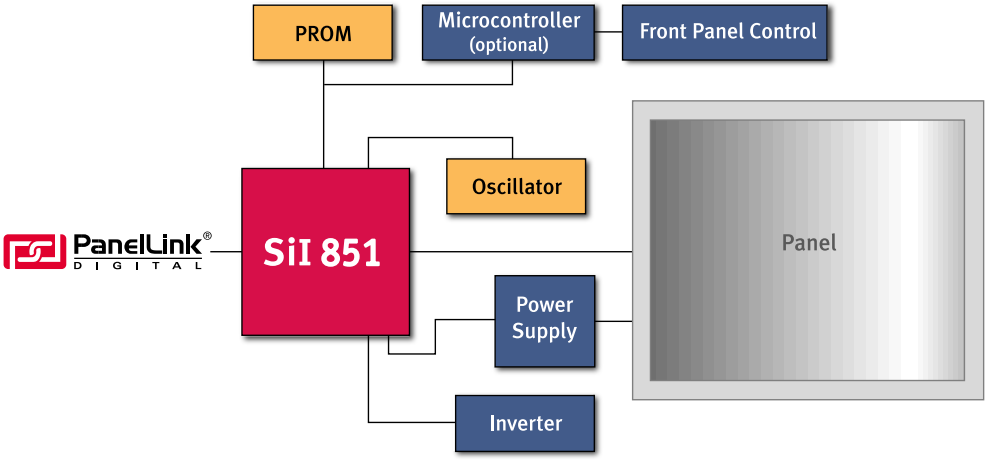
The SiI 851 is a single-chip solution that provides all the necessary functions required for a high-end pure digital SXGA or XGA flat panel monitor. As a single-chip solution, the SiI 851 lowers overall cost, increases reliability, requires less board space, and makes design and layout easier. The SiI 851 has an integrated PanelLink® Digital receiver, a programmable On-Screen-Display (OSD) block, a clock multiplier, power management capabilities and a number of high-quality PixelPrecision™ image processing features including: Scaling, Dithering, Gamma Tuning, Color Temperature and Contrast Control.

The SiI 851 enables monitor designers to deliver the highest image quality, Digital Visual Interface (DVI)-compliant monitors at costs low enough for mass-market adoption. Additionally the SiI 851's new PixelPrecision image processing features allows monitor designers to optimize a monitor's color quality for any SXGA or XGA resolution panel. The SiI 851's programmable panel interface is designed to work with all SXGA and XGA resolution LCD panels, with fully customizable OSD functions that can localize monitors for specific regions or market segments.



The SiI 851 | PanelLink Controller



SiI 851 Features

PanelLink® Controller

- Provides consistent highest quality pure digital visual experience
- Enables easy development of DVI-compliant, pure digital LCD monitors
- Eliminates analog image processing artifacts ("Pixel Dust")
- A cost-effective, single-chip solution lowering costs, increasing reliability and saving board space making product design easier

Input

- PanelLink Digital receiver for guaranteed compatibility with DVI specification
- Supports input resolutions from 25MHz to 112MHz

Output

- Flexible panel interface supports all SXGA (1280 x 1024) and XGA (1024 x 768) TFT panels
- Frequency range: 60MHz to 112MHz
- Output data timing may be staggered to reduce ground bounce
- 24-bit one-pixel/clock or 48-bit two-pixel/clock output for true color (16.7 million) support

PixelPrecision Scaling Algorithm

- Dithering allows 24-bit true color (16.7 million) to be shown on 18-bit TFT panels
- Three fully programmable look up tables are provided to allow Gamma Tuning, Color Temperature and Contrast Control
- Finite impulse response filter provides high image quality for both text and graphics
- Frame rate preservation locks outgoing frame rate with incoming frame rate to prevent temporal artifacts such as jutter[1] and tearing[2]
- Automatically upscales lower resolution images to SXGA (1280 x 1024) or XGA (1024 x 768) and downscales SXGA (1280 x 1024) to XGA (1024 x 768)
- Auto-detect functionality ensures rapid scaling of incoming images

On-Screen-Display (OSD)

- Fully programmable OSD support allows for localized messaging for specific regions and market segments
- Built-in loss-of-sync and out-of-range functions
- Micro-controller optional for lower cost

Internal Clock Multiplier

- Allows use of lower cost, lower frequency clock oscillators

Power Management

- Supports DVI and VESA® DPMS™ power management functionality
- Pulse Width Modulation (PWM) output can be used to control backlight brightness

[1] Jutter - Objects moving in abrupt steps across the screen.
[2] Tearing - The screen splits from one image to the next along a horizontal line.

Silicon Image's SiI 851 Starter Kit

(CP851DVI) enables easy demonstration and evaluation of the SiI 851 PanelLink Controller. The starter kit includes all of the hardware, software and documentation necessary to set up a high performance DVI-compliant monitor using Silicon Image's SiI 851. The SiI 851's registers and configuration EEPROM, as well as the EDID on the SiI 851 development board, can be programmed and read in real time through a serial port. The printed circuit board schematics, sample firmware, configuration files and application notes are provided as references so that new designs easily incorporate the SiI 851.

Contents include:

Hardware

- SiI 851 development board
- Matrox G400 DVI-compliant graphics card
- Power supply and cables

Software

- Digital Visual Editor
- 8051 firmware
- Evaluation C compiler
- Sample: OSDs

Documentation

- SiI 851 starter kit user's guide
- SiI 851 datasheet
- Reference schematics

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