High Performance TFT LCD Graphics Controller

LT768x is a series of high-performance LCD graphics acceleration controller introduced by LeveTop Semiconductor. It supports 16/18/24-bits RGB interface TFT LCD with various display resolutions ranging from 320*240 (QVGA) to 1280*1024 (SXGA).

LT768x supports a variety of MCU interfaces, including SPI, I2C and 8/16-bit MCU parallel. In order to achieve multi-level high-resolution display, LT768x has built-in an 128Mb display memory, which can support 2 gray levels from 1 bit per pixel to 24 bits per pixel (16M color), and alleviate the processing burden on MCU while displaying animation. With built-in geometric drawing engine, LT768x supports drawing points, lines, curves, ellipse, triangle, rectangle, rounded rectangle and other functions. In addition, LT768x has an embedded hardware graphics acceleration engine (BTE), which provides command-type graphic operations such as screen rotation, flipping, mirroring, PIP and graphics blending, and transparent display. These functions can greatly enhance the display performance, and ease the processing burden on the MCU. Furthermore, users can use SPI interface to connect with MCU, and save the I/O ports of the MCU for other purposes. The powerful display performance of LT768x is ideal for embedded systems with TFT-LCD displays such as home appliances, industrial controls, electronic instruments, medical devices, human-machine interfaces, industrial equipment, inspection equipment, charging stations, multi-function machines, elevator, check-in gate, etc.
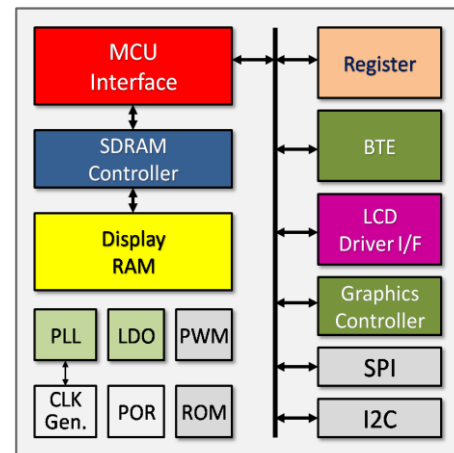
Characteristic

- Support SPI, I2C, 8/16 Bit Parallel Interface
- Built-in Geometric Drawing Engine: Support Draw Point, Line, Curve, Ellipse, Triangle, Rectangle, Rounded Rectangle
- Built-in 2D Graphic Accelerator Engine: Support Rotation, Picture Mirror, PIP, Hybrid Graphic and Transparent Display
- Built-in 128Mb Display Memory
- Support Resolution from 320*240 to 1280*1024 and 16/18/24bits RGB TFT Panel
- Built-in standard ISO/IEC 8859 Font
- Built-in 2 16bit PWM Timer
- Embedded SPI / I2C Master: Support External Flash(Serial Flash), Copy data to Picture Buffer Area
- Provide Three Power Mode: Standby, Suspend, Sleep Mode
- Built-in Programmable PLL, LCD Scan, SDRAM, Internal System Clock
- Voltage: 3.0V~3.6V
- Package:

  _ LT7681 / 7683 / 7686: 128pin LQFP
  _ LT7680A / 7680B: 68pin QFN

Block Diagram

Application