freescale
i.MX

i.MX Applications Processors

Evaluation Kit Based on i.MX 6SoloLite

Overview

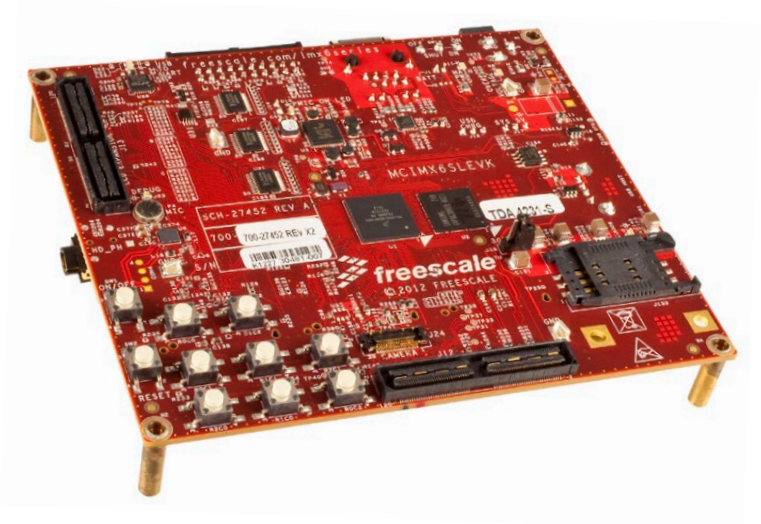
Freescale delivers the next installment in a line of highly flexible, market-focused development tools with an evaluation kit (EVK) based on the i.MX 6SoloLite applications processor. The i.MX 6SoloLite is the first system-on-a-chip (SoC) incorporating a high-performance 1 GHz ARM® Cortex®-A9 CPU and integrated E Ink® and Sipix® display controllers to drive current and next-generation electronic paper display (EPD) panels.

This EVK enables EPD with touch control and LCD or HDMI display, audio playback, as well as the ability to add WLAN, a 3G modem or Bluetooth® technology. Additionally, the EVK is designed to facilitate software development with the ultimate goal of faster time to market through the support of both Linux® and Android™ operating systems.

The Freescale Integrated EPD Hardware Controller

The integrated EPD controller is a hardware implementation of the E Ink EPD controller which is used in most e-readers on the market today. The integrated EPD controller removes the cost of the external hardware controller and its associated memory. By removing this cost, customers can bring an i.MX 6SoloLite Cortex-A9 solution to market at a lower cost than existing solutions. The Freescale E Ink EPD controller takes advantage of the enhanced pixel processing pipeline (ePxP) unit inside the i.MX 6SoloLite processor for post rendering activities such as color space conversion, combine and rotate.

i.MX 6SoloLite EVK



i.MX 6SoloLite EVK System Contents

- i.MX 6SoloLite applications processor-based system
- Power supply and USB cable
- Quick Start Guide
- Two bootable SD cards containing an Android OS

BUILT ON
Energy Efficient Solutions by Freescale

The EPD controller supports many features required for next-generation e-readers, such as:

- EPD TFT resolutions of 2332 x 1650 at 106 Hz refresh rate or 4096 x 4096 at 20 Hz
- Up to 5-bit pixel grayscale representation
- Color EPDs from E Ink
- Up to 64 concurrent updates with partial update support
- Automatic collision handling when used in conjunction with the i.MX driver

With features such as these, an EPD-based device can be developed to allow for faster updates, crisper response times and an overall better user experience.

Efficient Performance with Low Power

EPD-based devices require a different processing model than most portable systems. These devices benefit from very quick image processing and updating of the panel in order to go into suspend state as fast as possible. With this approach, battery life can be extended extensively—up to two months—compared to many portable devices. The EVK is based on the low-power i.MX 6SoloLite processor, which has multiple processing units to speed up performance including an Cortex-A9 core, vector floating point unit, 2D graphics accelerator and ARM NEON™ SIMD media accelerator. 2D acceleration is provided by an OpenVG™ 1.1 hardware accelerator which renders text, lines and images for applications such as scrolling text and maps as well as a 2D composition engine which provides bit bliting acceleration.

Platform Features

Processor	• Freescale i.MX 6SoloLite 1 GHz Cortex-A9 processor
Power management	• Freescale PF0100 PMIC
Memory	• 1 GB LPDDR2 running at 400 MHz • Footprint for managed NAND (eMMC/eSD) • SPI flash • Three Secure Digital (SD)/multimedia card (MMC) sockets
Display board interface	• E Ink EPD board with MMA8450QT three-axis digital accelerometer • LCD daughter card • HDMI daughter card
Audio	• Wolfson WM8962 audio codec • Audio HP jack • External speaker connection • Microphone
Connectivity	• USB host connectors • Micro USB OTG connector • Ethernet (10/100T) connector • SIM card socket • Mini PCIe connector
Debug	• JTAG connector • One console UART

The Freescale MMA8450QT three-axis digital accelerometer is used to detect motion and orientation. Like much of our broad sensor portfolio, this sensor provides energy efficiency through architectural optimization and exceptional duty cycling.

The Freescale PF0100 power management IC (PMIC) integrates a variety of discrete functions into a single device, helping to reduce the size and weight of the e-reader while extending battery life through innovative power management and control features.

Software and Tools

The EVK comes pre-installed with an Android OS flashed on two SD cards. Freescale also offers both Android and Linux board support packages, as well as additional information at **freescale.com/iMXtools**.

For more information, visit freescale.com/6SLEVK
Join fellow i.MX developers online at imxcommunity.org

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