

# Evaluation Kit (EVK) for the i.MX51 Applications Processor

## Price. Performance. Personality.



### Overview

Freescale delivers the cost-effective i.MX51 evaluation kit, allowing customers to develop, debug and demonstrate their next great product without compromising performance. As part of our new price, performance and personality series, the evaluation kit is designed to support all the features of the device in a small, single-board design to enable designers to complete a development platform at a low price point of less than an estimated \$700USD. The i.MX51 EVK has two optional add-on modules: an LCD module and an expansion board which includes a camera, TV out, keypad and UART. Based on a powerful ARM Cortex™-A8 core, the i.MX51 EVK delivers extreme performance and low power consumption, helping developers design products that meet today's demands for energy efficiency.

A range of connectivity options makes the i.MX51 EVK suitable for developing many different types of user applications. The provided board support packages (BSP) for Linux® OS and Windows® Embedded CE enable rapid prototyping which helps to speed up the processor selection process and quickly deliver a demo into the hands of the project stakeholders. The i.MX51 EVK includes two SD cards: one pre-loaded with Linux and the other with Windows Embedded CE. Both options support a wide range of automotive, consumer, general embedded and industrial applications.

### Key Benefits

- Explore multiple connectivity options with the i.MX51 applications processor: display, touch screen, USB, SDIO, Ethernet and others

- Investigate usage of the video and graphics through the hardware accelerated video processing unit, OpenGL® ES 2.0 and OpenVG™ 1.1 graphics processing units
- Develop with the MC13892 power management chip from Freescale that supports power sequencing of the i.MX51 device and output rails to supply power to external components such as memories and other system peripherals
- Use proven design examples and software drivers to reduce hassles associated with design-in of key connectivity and power management options
- Enable rapid prototyping of human-machine interfaces (HMI) via the on-board digital visual interface (DVI) peripheral that allows the EVK to interface to a standard PC monitor
- Boot from SD, SPI or NAND flash

### Performance

With the i.MX51 EVK, designers have access to key features needed for an end design offering hardware functionality and connectivity required for developing many applications, such as portable media players, mobile Internet devices, smartbooks, gaming consoles, ebooks, media phones, digital photo frames, high-end appliances, video and navigation, security and surveillance, medical and factory automation. With production-ready software components, an optimized OS and a system-validated BSP, designers have the tools to test and maximize the performance of the applications they have developed.

Software and hardware engineers can also download this code to the target EVK to test and validate their software and to run and evaluate performance metrics. The ability to have all communications ports working (serial, USB) and to debug over JTAG and Ethernet is essential for product development. The EVK also provides boot select switches, which provide the user with the option to override the default boot setting of the CPU.

### Personality

Freescale's EVK for the i.MX51 applications processor allows designers to quickly prototype and demonstrate the results of their development efforts in a small, portable design the size of a 5 x 5 portrait, giving confidence to project decision makers that the product is that much closer to production. Develop user-interactive software and display your product-specific graphical data on a high-quality, touch screen-enabled 7" WVGA LCD available as an add-on module to the EVK. Connect additional input and output peripherals such as a camera, TV out, keypad and UART with the expansion board add-on module. With the Freescale i.MX51 EVK, prototyping and development are simplified to improve time to market.

### i.MX51 EVK Key Features

#### CPU

- i.MX51 applications processor
- 4 x 128 MB DDR2
- 4 MB SPI NOR
- PMIC: Freescale MC13892
- NAND and EIM header

## Peripherals

- 7" WVGA touch screen LCD display (add-on module)
- Two LVDS connectors
- DVI-I connector
- Two SD/MMC card slots
- USB host x2/USB OTG x1
- Ethernet port
- Mini PCI Express®
- SATA HDD connector
- SIM card connector
- Keyboard connector
- Mic input, stereo headphone output (jack), V2IP headphone
- Speaker connector
- USB camera connector
- PS-2 TP connector
- RGB output through DVI-I connector
- Expansion header
- Ambient light sensor footprint
- FM receiver footprint
- Expansion board (add-on module) with camera, TV out, keypad and UART

## Debug

- Debug serial port
- JTAG
- Reset, boot switches
- Debug LED
- Power source
- Power on/off button
- Power measurement header

## Software Development Kit

- Optimized and validated for both Linux and Windows Embedded CE operating systems
- Integrated and validated BSP for the i.MX51 EVK feature set
- Highly optimized software that is coded by Freescale processor experts
- Consistent application programming interface (API) and frameworks across software packages
- Evaluation and production software packages available through a streamlined, Web-based licensing and delivery system
- Freescale development tools, test streams and documentation provided

| Part Number | Operating Systems             | MSRP (USD) |
|-------------|-------------------------------|------------|
| MCIMX51EVKJ | Linux and Windows Embedded CE | \$699.00   |

| Part Number | Peripheral             | Features                                    | MSRP (USD) |
|-------------|------------------------|---------------------------------------------|------------|
| MCIMX51LCD  | i.MX51 LCD Module      | WVGA with resistive touch screen            | \$250.00   |
| MCIMX51EXP  | i.MX51 Expansion Board | -CMOS camera<br>-TV out<br>-Keypad<br>-UART | \$200.00   |



*i.MX51 Evaluation Kit assembled with LCD and expansion boards*

## The MC13892 Power Management and User Interface IC (PMUI IC)

The MC13892 PMUI IC is designed for use with the i.MX51 applications processor requiring a highly integrated, bi-directional power management IC and communications device. Features include:

- Battery charging system for wall charging and USB charging
- 10-bit ADC for monitoring battery and other inputs
- Four adjustable output buck converters
- 12 adjustable output low drop outs (LDO) with internal and external pass devices
- Two boost converters
- Serial backlight drivers
- Power control logic with processor interface and event direction
- Real-time clock and crystal oscillator circuitry
- Touch screen interface
- SPI/I<sup>2</sup>C bus interface



*i.MX51 Evaluation Kit*

## Learn More:

For current information about Freescale products and documentation, please visit [www.freescale.com/imx51evk](http://www.freescale.com/imx51evk).