Freescale i.MX27 Product Development Kit
Design. Debug. Demo.

Overview

Do you want to design a product that requires exceptional video quality, a variety of connectivity options and robust security without sacrificing performance? Do you have a tight development schedule? Market demands are always increasing. To break through the clutter, your product must have the performance, simplicity and elegant design that sets new standards.

If this is your environment, you need a development platform with an integrated hardware engine and robust software.

Design engineers who want to focus on what makes their product unique in the market—and spend only the time necessary to develop the application's features—need look no further than Freescale Semiconductor. Freescale's comprehensive "form-factor" development kit is built on the powerful ARM 926EJ-S™ based i.MX27 applications processor with SmartSpeed™ technology. It delivers a high-performance, low-power, cost-effective solution for a variety of solutions, including devices that require an h.264 D1 hardware codec for high-resolution video processing, an Ethernet 10/100 MAC, security and plug-and-play connectivity.

The i.MX27 PDK is preconfigured with your choice of Linux® or Windows® Embedded CE 6.0, making it suitable for a wider range of multimedia and connectivity applications.

Design

With the i.MX27 PDK, you can access more key features. Many core hardware and software elements are included, saving development time and expense. The Freescale i.MX27 PDK's personality module provides the designer with key hardware functionality and connectivity required for many consumer, health care and industrial applications, such as video- and

voice-over-IP (V2IP) cordless and mobile phones, video surveillance, intelligent remote controls, digital photo frames, health care monitoring and point-of sale terminals, saving time in the design and debugging of the device.

With production-ready software components, an optimized OS, a system-validated board support package (BSP) and Freescale's high-performance multimedia codecs, designers have the tools to test and maximize the performance of the applications they have developed.

Debug

Software and hardware engineers are provided with the key resources to test their developed code. They can also download this code to the target PDK to test and validate their software and run and evaluate performance metrics where needed. The ability to have all communications ports working (serial, USB, Ethernet) and to debug over JTAG is essential for product development. For example, the USB and the SD card can be used to run video tests from USB and from SD, or designers can reformat the SD card and use it as a disk.

Demo

Finish strong! Demonstrate the results of your development efforts in the small form factor provided, and evoke confidence that your product is ready to go into production. The competition is fierce, and this feature will give your management team confidence that your product is ready. Get your project

approved and into production quickly. With Freescale's i.MX27 PDK, key stakeholders can hold the product in their hands and evaluate the compelling features of your design.

Key Features

i.MX27 Processor Module

- CPU engine: ARM 926EJ-S, 400 MHz
- Core voltage: 1.2–1.5V
- High-performance ARM9® platform with VPU and embedded L1 cache
- Excellent connectivity options
  - 10 and 100 Mbps Ethernet/IEEE® 802.3MAC
  - USB OTG high speed, host x 2
  - 3 x MMC/SD, Memory Stick-Pro™
  - ATA-6 interface for HDD
- Robust multimedia including MPEG-4 hardware encoder
- Low power <500 mW
- Security Control
  - Crypto accelerator
  - Electronically blown fusebox
  - High-assurance boot
  - Security controller with encrypted RAM storage
  - Real-time OS/SW integrity checker
- Power management (PMIC MC13783) + power circuitry
- Audio
- HS USB PHY
- Touch controller
- Connector

Personality Module

- 10/100 Ethernet port
- Accelerometer MMA7450L (Freescale)
- User I/O
- Connectivity (FM, 802.11, Bluetooth®, USB OTG, USB HS)
- Navigation buttons and keypad
- 2.7" TFT touch screen display
- 2 MP camera module
- SD card, ATA HDD
- External connectors (dock, headphones, TV-out, GPS)
- Speaker
- Input/output jack

Software Development Debug Module

- Debug Ethernet port
- Debug serial port
- JTAG
- Reset, interrupt, boot switches
- Debug LEDs
- CodeTest interface
- Power source
- Current/power monitoring

Software Development Kit

- Optimized and validated for Linux, or Windows Embedded CE 6.0 environments
- Integrated and validated BSP and additional drivers for personality module

- Middleware, GStreamer or Windows CE framework, multimedia codecs, connectivity protocol stacks, wireless applications and power management
- Functional software packages with production-ready components that have been developed by Freescale
- Highly optimized software that is coded by Freescale processor experts
- Free implementation of popular multimedia algorithms
- Consistent application programming interface (API) and frameworks across all software packages
- Evaluation and production software packages available through a streamlined, Web-based licensing and delivery system
- Freescale development tools, test streams and documentation

Key Benefits

- Up to VGA 30 fps video quality
- Superior image quality
- Industry-leading power management offers an abundance of different power saving modes, giving the system developer the ability to make trade-offs between power consumption in stand-by and recovery times
- Rich multimedia experience with exceptional quality; exceeds the performance of higher MHz processors

- Reduced hassle associated with design-in of key connectivity options
- Simplified product design

The i.MX27 Applications Processor

- CPU complex with ARM926EJ-S 400 MHz core, L1 cache, 16 channel DMA and Smart Speed™ switch
- Smart power management, including support for Dynamic Process Temperature Compensation (DPTC) lowering the voltage to the minimum level needed to support the current operating frequency
- Low-power hardware accelerated video processing unit consisting of an MPEG-4, H.263 and H.264 encoder and decoder for D1 resolution as well as an eMMA for image pre-processing and post-processing stages
- Hardware code that addresses the I/O bottleneck, helping to reduce power consumption and enable greater device mobility
- System connectivity, including 10 and 100 Mbps Ethernet/IEEE802.3MAC, USB OTG high speed, host x 2, 3 x MMC/SD, Memory Stick-Pro, ATA-6 (HDD) interface and Audio MUX

Freescale Multimedia Codecs

Freescale's high-performance multimedia codecs enable a series of popular audio, video and still image applications for the i.MX27 applications processor. The multimedia codecs are provided as fully functional software packages to support various use cases, such as audio/video playback, audio/video record or still image capture/display. For more information, visit **www.freescale.com/imxcodecs**.

Learn More: For current information about Freescale products and documentation, please visit **www.freescale.com**.

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