Freescale Multimedia Applications Processors

# i.MX31 Product Development Kit (PDK)

## Design. Debug. Demo.

freescale.com/imx31pdk

freescale semiconductor

## Overview

Design engineers seeking a product development kit for a high-performance ARM11™–based devices need look no further than Freescale Semiconductor. The i.MX31 Product Development Kit (PDK) provides an integrated hardware engine and robust software to enable development teams to focus on differentiating their IP for market success.

The comprehensive “form-factor” development kit is founded on the powerful i.MX31 applications processor with Smart Speed™ technology based on the ARM1136™ core. It delivers a high performing, low power, and cost attractive solution for a variety of mobile solutions, including devices that require excellent 3D graphics and video performance.

The i.MX31 PDK is preconfigured with either Linux® operating system, Windows® CE 5.0 or Windows Embedded CE 6.0, making it suitable for a wider range of multimedia applications.

To complete and speed product development, Freescale’s high-performance multimedia codecs enable a series of popular audio, video and image applications for the i.MX31 applications processor. The multimedia codecs are provided as software packages to support various use cases, such as audio/video playback, audio/video record or image capture/display.

### PDK Key Features

#### i.MX31 Processor Module

- CPU Engine: ARM1136 core, 532MHz
- High performance ARM11 platform with VPU and embedded L2 cache
- Excellent connectivity options
  - 3x USB
  - ATA-6 Interface for HDD and CD/DVD
  - 256 MB NAND flash
  - 128 MB SDRAM
- Robust multimedia including MPEG-4 hardware encoder
- Low power - <500mW
- High performance display
  - Embedded 3D graphics
  - Hardware resizing, inversion, rotation
  - Hardware color space conversion
  - Video/graphics combining
- Power Management (PMIC MC13783) + power circuitry
- Audio
- HS USB PHY
- Touch controller
- Connector

#### Personality Module

- 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
- 2MP camera module
- SDcard, ATA HDD
- External connectors (dock, headphones, TV out, GPS)
- Audio input/output

## 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

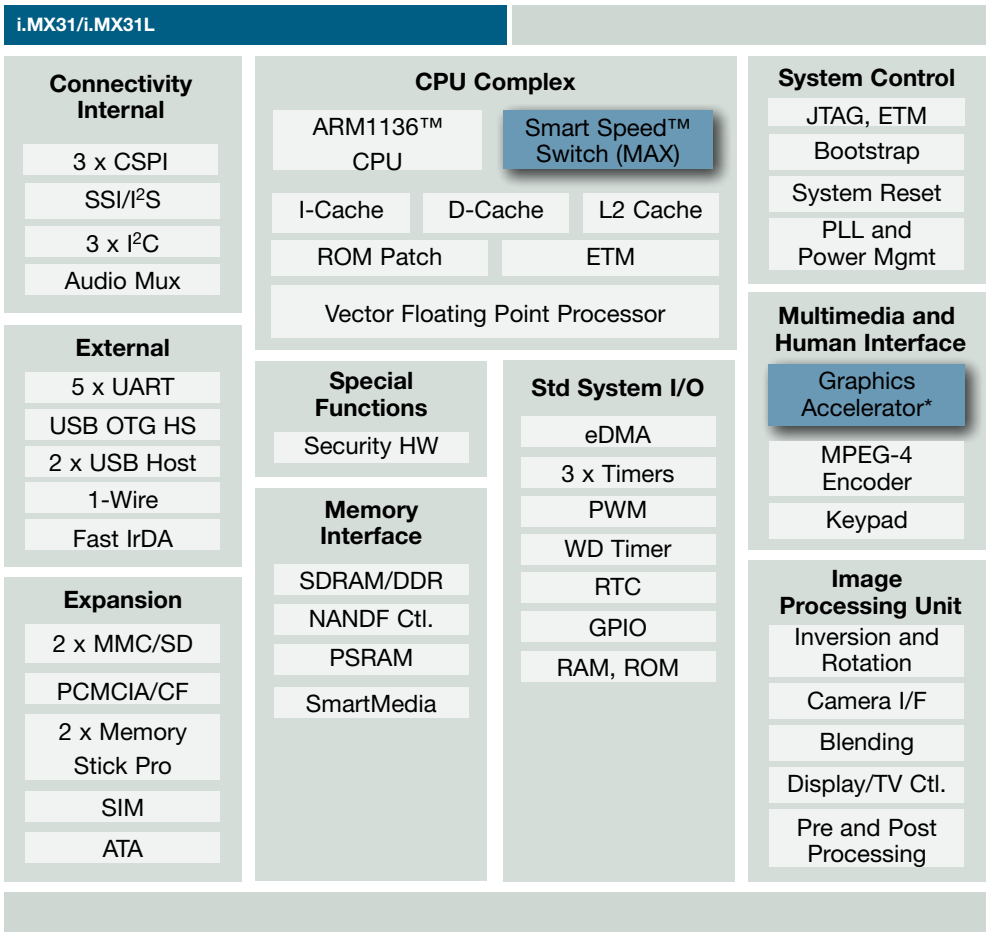
- Optimized and validated for Linux operating system and Windows CE 5.0 and Windows Embedded 6.0 environments
- Integrated and validated BSP with drivers for personality module
- Middleware, GStreamer or Windows CE framework, multimedia codecs, connectivity protocol stacks, wireless applications and power management
- Functional software packages with production-ready components that have been developed by Freescale
- Consistent application programming interface (API) and frameworks across all software packages
- Software packages available through a streamlined, Web-based licensing and delivery system
- Freescale development tools, test streams and documentation

## PDK Key Benefits

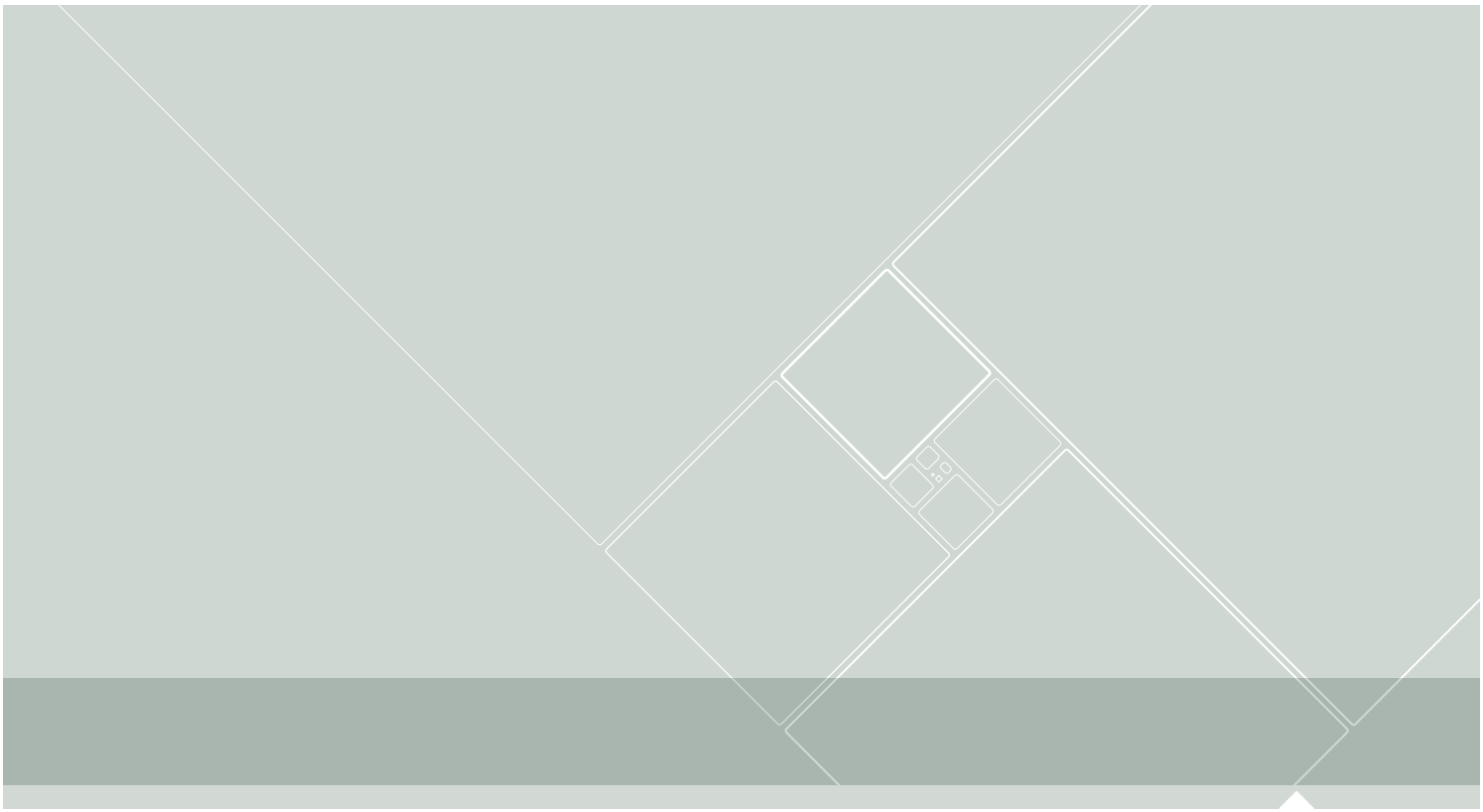
- Delivers up to VGA 30 fps video quality
- Includes industry leading power management offering an abundance of different power saving modes, giving the system developer the ability to make trade-offs between power consumption in stand-by and recovery times
- Provides a rich multimedia experience with exceptional quality and exceeds the performance of higher MHz processors
- Reduces hassle associated with design-in of key connectivity options
- Offers simplification of product design
- Displays superior image quality

### The i.MX31 Applications Processor

- CPU complex with ARM1136JF-S core, L2 cache, vector floating point co-processor, and Smart Speed switch
- Smart power management including support for multiple low power modes, dynamic voltage frequency scaling, and dynamic process temperature compensation
- External memory interface with support for SDRAM, mobile DDR, NAND flash, and PSRAM
- Smart multimedia with support for hardware accelerated MPEG4 encode and pre & post processing
- Display port with ability to support a variety of popular displays
- Sensor port which provides connection to either one or two image sensors
- System connectivity, including USB high speed OTG, CSPIs, I2C, PCMCIA, ATA, UARTs
- Graphics acceleration
- For more information, visit www.freescale.com/imx31




**Not available in i.MX31L or i.MX31LC*



Learn More: For more information about Freescale products,
please visit www.freescale.com.



Document Number: BRIMX31PDKKIT
REV 0

freescale™
semiconductor