i.MX31 and i.MX31L Multimedia Applications

Overview
Accelerate your power-hungry mobile applications with Freescale Semiconductor’s i.MX31 or i.MX31L multimedia applications processors. The i.MX31 and i.MX31L processors unplug multimedia, driving video and graphics to 30 fps of VGA quality with power to spare to perform other tasks simultaneously. Based on an ARM1136JF-S™ core, Freescale’s multimedia applications processors, starting at 532 MHz, with a vector floating point co-processor and L2 cache, are designed for wireless devices running computationally intensive multimedia applications such as digital video broadcast and videoconferencing. Target devices include feature-rich smartphones, digital video recorders, digital cameras, mobile gaming consoles, mobile multimedia players and many other mobile wireless applications.

Benefits

Image Processing Unit
Freescale’s i.MX31 and i.MX31L multimedia applications processors have a built-in IPU that includes the functionality required for image processing and display management including deblock, de-riding, color space conversion, independent horizontal and vertical resizing, blending of graphics and video planes and rotation in parallel to video decoding. The IPU accelerates loop deblocking for H.264 decode as well as encode. It provides acceleration of image processing to deliver up to 30 fps of VGA video quality.

Graphics Processing Unit
Freescale’s i.MX31 processor delivers an integrated 3-D Graphics Processing Unit (GPU) that provides an incredible 1 MTris/sec (double textured, bi-linear, Gouraud shaded) at about 100 Mpix/s (effective). It offers full scene anti-aliasing for superior image quality and provides OpenGL® ES and Java™ Mobile 3-D support.

Security Features
Freescale’s i.MX31 and i.MX31L incorporate Freescale’s platform independent security architecture, a combination of security features that provides a high level of confidence for carriers, content providers and consumers. The i.MX31 security architecture is a blended hardware/software solution. The IPU provides acceleration of image processing to deliver up to 30 fps of VGA video quality.

Power Management
Freescale’s i.MX31 and i.MX31L are built using Freescale’s Smart Speed™ technology with some powerful enhancements. Our dynamic process temperature compensation (DPTC) mechanism measures reference circuits’ delays dependent on the process speed and temperature, then lowers the voltage to the minimum level needed to support the current operating frequency. Automatic DVFS allows on-the-fly frequency adjustment according to the current performance requirements of the system. The automatic DVFS hardware mechanism monitors the processor load and controls the supply voltage and the frequency with minimal software and operating system involvement.

Device Management
Qtopia® by Trolltech® is an application platform and user interface for Linux®, allowing efficient creation of graphical user interfaces (GUI) for Freescale processors running embedded Linux. The Qtopia 4 Series provides a robust and proven development environment, which consists of Qtopia Core, Qtopia Platform and Qtopia Phone Edition. Qtopia Phone Edition is a comprehensive application platform and user interface for Linux-based mobile phones, including integrated video, phone, VoIP capabilities and a number of other applications that run on Freescale’s MXC, i.MX21 and i.MX31 platforms.
Qtopia® 4 Series

Qtopia is unrivaled as the application platform and user interface for Linux, allowing efficient creation of mobile and embedded devices. The Qtopia 4 Series is the latest generation of Trolltech’s Qtopia product family. It provides a robust and proven development environment inherited from Trolltech’s leading application framework, Qt®.

Continuous & Efficient Innovation
Qtopia’s rich toolkit, intuitive API and comprehensive documentation reduce time to market. With Qtopia and Linux, development accelerates across device types.

Freedom to Customize
With full source code and documentation available, developers can easily modify Qtopia and integrate other technologies to create distinctive devices.

Proven Technology
Qtopia inherits the proven strengths of Qt, Trolltech’s industry-leading cross-platform application framework. Qtopia is the preferred application development platform for embedded Linux devices.

Technical Excellence
Qtopia products share a proven API, which provides over 400 C++ classes, encapsulating a complete infrastructure for end-to-end application development. Qtopia’s invaluable tools, which enable rapid and optimal development, include a powerful GUI layout and forms designer and a set of tools designed to smooth the internationalization workflow. Qtopia also provides its own windowing system, eliminating the need for X11 on embedded devices.

Qtopia Core
Qtopia Core provides the foundation for the entire Qtopia product family. It is the leading application framework for single-application devices powered by embedded Linux, and enables manufacturers to efficiently create devices with applications highly tuned to market needs.

Qtopia Phone Edition
Qtopia Phone Edition provides a comprehensive solution for mobile phone development. It is the de-facto application platform and user interface for Linux-based phones. Manufacturers and designers are using Qtopia Phone Edition to build feature-packed products while maintaining complete control of branding and the user experience.

Qtopia Platform
Qtopia Platform offers capabilities that are essential in many multi-application Linux devices, including text entry, application launch, and inter-process communication. Building on Qtopia Core, Qtopia Platform enables the productive creation of Linux devices with a rich multi-application user experience.