



# Wireless Media Player for i.MX-Based Devices

## Overview

The cellular market continues its explosive growth with a wide range of products and an ever-expanding set of features. These products create a whole host of opportunities for consumers and a bevy of challenges for designers. Today's consumers require easy access to contact information, calendars, to-do lists, e-mail and the Internet. The new generation of mobile phones provides advanced personal information management (PIM), cameras, multimedia features, such as video capture and playback, and music players—features that really put the smart in smartphones!

Freescale's i.MX family of application processors—the i.MX21, i.MX1, i.MXL and the DragonBall™ series of applications processors—provide Smart Speed technology and design-essential benefits for next-generation mobile multimedia handhelds and wireless products.

## i.MX21 Applications Processor

The newest member of Freescale Semiconductor's widely-adopted applications processor portfolio is the i.MX21 multimedia applications processor. The i.MX21 is designed to deliver to handheld devices the ultimate performance in multimedia. With it, developers will enter new dimensions in smart video, 3-D graphics, connectivity and power management.

## Enhanced Video Capabilities

The i.MX21 is the first applications processor with a built-in, low-power enhanced multimedia accelerator (eMMA), hardware block, which consists of an MPEG-4 and H.263 encoder/decoder, and image preprocessing and post-processing stages. These features provide exceptional image and video quality. Devices with the i.MX21 are capable of long video playback time with exceptional video quality (high frame rates and large screen resolution support). Hardware code addresses the I/O bottleneck and helps reduce power consumption, enabling greater device mobility.

## Exceptional Graphics

You can offer users a great experience watching video and running graphics-intensive applications such as 3-D gaming. The i.MX21 elevates overall system performance through a bus master interface that reduces the overhead to external multimedia coprocessors. Advanced graphics software standards, application programming interfaces (APIs) and 3-D software engines are also supported.

## Power Management

All the robust features in the world don't do you much good if your device can't go the distance. The i.MX21 enables power-aware and power-optimized multimedia applications through effective system clock distribution, low current leakage control and frequency change on the fly.

## Smart Speed Switch

Our Smart Speed Switch allows you to achieve true parallelism resulting in more effective data per CPU cycle. The switch allows up to four simultaneous transactions, which can provide the effective throughput of a 532 MHz bus. This allows enriched multimedia experiences, such as V2IP, with exceptional quality that exceeds the performance of higher MHz processors.

## Multimedia Solutions

Manufacturers all over the world are designing next-generation wireless communicators and need smart solutions.

PacketVideo creates solutions that give the wireless world the richness of sight, sound, animation and moving pictures; its software enables mobile phones to take digital pictures, record home movies, play back digital music and videos, and make two-way videophone calls.

PacketVideo offers advanced technology and engineering expertise to create highly integrated application suites for high-quality multimedia capabilities in mobile devices. Its pvPlayer™ decodes and plays rich digital media, video and audio for viewing on mobile information devices such as PDAs and smartphones. In addition, using Freescale's comprehensive hardware and software solutions in conjunction with our processors helps reduce overall system cost and speed time to market.



**Learn More:** For more information about Freescale products, please visit [www.freescale.com](http://www.freescale.com).

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PacketVideo Multimedia Solutions are highly optimized custom embedded products based on a modular architecture for rapid design, implementation, and integration into leading hardware platforms and operating systems.

## PacketVideo Media Player

PacketVideo's Media Player supports streaming, progressive download and playback with support available for all major mobile content types, including video and audio (3gpp, MPEG-4, h.263, AVC, Windows Media™, RealMedia, AAC, AAC+, WMA, MP3, AMR, QCELP). It can be configured as separate audio and video applications or as a single integrated media player. Optional 3-D audio enhancement.

## Player Features

Features and APIs are available and include:

- Play/Pause/Stop & Random positioning
- Efficient fast forward and rewind.
- Interfaces to get different media formats
- File Playback Support
- 3GPP & MPEG-4
- iMotion
- ASF, WMV and WMA
- MP3, AAC, AMR and WAV
- Streaming Support
- 3GPP streaming
- Download support
- PV FastTrack
- Interfaces allowing iMotion pseudo-streaming and download



## A Full Suite of Multimedia Products for Mobile Phones

- **pvPlayer™**—media player built on our #1 video engine supports streaming, progressive download and playback with support available for all major mobile content types (3gpp, MPEG-4, h.263, AVC, Windows Media, AAC, MP3, AMR, QCELP). Can be configured as separate audio and video applications or as a single integrated media player.
- **pvCamcorder™**—our camcorder uses our author engine and optimized codecs to provide smoother, better-looking audio and video.
- **pv2Way™**—two way video telephony—(324M compliant) enables real-time synchronous two-way video telephony. Allows video communication over 3G W-CDMA/UMTS networks. Visual communications between mobile devices or between mobile devices and PC.
- **pvPersonal Music Player™**—turns mobile phone into personal music player with unsurpassed audio quality with all popular music formats, playlists, SRS WOW™ and MIDI audio enhancements, even Streaming Radio

## Partnering with Freescale

PacketVideo software helps combine the best of the mobile phone and consumer electronics devices into smart products with strong consumer appeal. Collaborating with Freescale—its i.MX21 has demonstrated leadership in the portable handheld market—allows for a high level of on-chip integration, very low-power system design without compromised performance and optimization for multimedia applications.



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