Freescale Portable Media Player Reference Design Based on i.MX21

**Overview**

Freescale’s powerful ARM®-based multimedia applications processor, i.MX21, has been combined with BSQUARE’s deep engineering experience on the Microsoft® Windows Mobile™ software to produce the latest innovation in personal electronics—the Freescale Portable Media Player (PMP) Reference Design.

Cinema-quality video and the latest in digital entertainment content can be accessible anytime, anywhere with Microsoft’s Portable Media Center (PMC) based on its Windows Mobile software. These handheld devices allow you to download stored media from your PC so you can watch recorded TV, movies and home videos, listen to music and view photos when and where you choose. Freescale’s i.MX21 Portable Media Player PMP Reference Design supports Microsoft Windows® CE 5.0 OS and was designed to help speed development of these portable media devices.

**Chosen by Microsoft as the first authorized smartphone systems integrator, BSQUARE is helping Freescale engineer these innovative devices by providing critical path expertise in the development of Windows Mobile software-based handhelds and smartphones.**

Based on the commercially available i.MX21 applications processor, the i.MX21 PMP Reference Design can eliminate months of development time for multimedia handhelds. This robust hardware and software development kit is designed to be compliant with Microsoft’s PMC standard while allowing user customization through broad I/O support. The i.MX21 multimedia applications processor, based on an ARM926EJ-S™ processor core, is at the heart of the design, driving rich video and high-fidelity audio performance in a power-efficient and cost-effective design package.

Example implementation includes:

> Freescale’s i.MX21 multimedia applications processor
> 15/20/30 GB 1.8" HDD support
> 64 MB Flash, 64 MB SDRAM
> 3.6" 320 x 240 16-bit color LCD
> Push-button U/I
> Stereo headphone output
> USB 2.0, Ethernet and UART support
> Four hours of video playback
> Windows CE 5.0/PMC
> Industrial design case
> TV out
> Compact Flash
> SD/SDIO

The PMC software development kit, available free of charge, contains a schematic (OrCAD or PDF), bill of material (BOM), layout files, i.MX21 Windows CE 5.0/Portable Media Center board support package (BSP) and performance data.

The i.MX21 multimedia applications processor is at the heart of the system and:

> Supports open operating systems, including Microsoft Windows CE. NET®
> Drives high-end video resolution and quality
> Enables excellent system performance without wasting power due to unnecessary wait states because of its optimized memory subsystem
> Allows extensive customization of the reference design through the broad I/O capabilities built into the portable media player

Bring consumers the cinema-quality video they demand. Start your media player or other device design with Freescale’s i.MX21 Portable Media Player Reference Design and BSQUARE’s experience and depth of technical expertise when it comes to engineering devices based on the Microsoft Windows Mobile software. Contact your Freescale sales representative or visit www.freescale.com/imx to get more information on this exciting combination.

**Learn More:** For more information about Freescale products, please visit www.freescale.com.
BSQUARE, Comprehensive Windows Mobile Solutions for Device Makers

BSQUARE provides products, consulting, and Microsoft Windows licensing solutions for design, development, customization, quality assurance, deployment, and training in support of embedded smart devices. Moreover, BSQUARE is the leading systems integrator of Windows Mobile Smartphone and Pocket PC-based devices. Customers can benefit from the depth and breadth of our experience on your next Windows Mobile project.

At every stage of the development cycle, BSQUARE has a product or service that can help get your device to market faster. Some of our Windows Mobile Smartphone solutions are:

Developer Training

Before your engineers tackle a Windows Mobile development project, reduce their learning curve by ensuring they receive relevant technical training. Provide your development team with a solid foundation in Windows CE architecture and development tools, plus a strong understanding of the smartphone adaptation kit (SAK), radio interface layer (RIL), and other topics specific to the Windows Mobile platform.

Board Support Packages (BSPs)

The BSP is your starting point for adapting Windows Mobile software to real device hardware. The better your BSP, the more advanced the starting point of your project. BSQUARE develops high quality, production-ready BSPs in partnership with the leading semiconductor manufacturers, including Freescale. There is no better starting point for your Windows Mobile project than a BSQUARE board support package.

Power Management

Sophisticated phones and convergent devices demand rigorous power-management techniques. Innovative design offers real opportunities for differentiation by extending battery life 10% or more—a true advantage in the marketplace. BSQUARE has been optimizing power management routines on Windows CE devices for years, and offers an established methodology for defining and meeting appropriate objectives on Windows Mobile devices. Let our experts help you define your strategy and optimize your device’s power management.

SDIO Host Driver Development Kit

SDIO card support is a valuable feature to include in your Windows Mobile software design. BSQUARE created a standard driver architecture and APIs to ensure a high degree of interoperability among Windows CE OS-based devices and peripherals implementing SDIO technology. Use our DDK and driver stack to support SDIO cards and peripherals on your device from a variety of vendors.

Partnering with Freescale

BSQUARE mobile solutions can accelerate time to market and reduce project risk. Using Freescale’s i.MX21 Portable Media Player Reference Design offers developers the ability to significantly reduce their design time, integrate broad connectivity capability and drive high-quality multimedia applications in their portable media devices.

Creating a Smarter Phone? We Can Help:
- Consulting and Product Planning
- Platform Software Engineering
- Application and Middleware Development
- QA Testing and Pre-Certification

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